ROCKS and MINERALS

PUBLISHED MONTHLY

Edited and Published by PETER ZODAC

July - August 1949

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The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

CLUB PUBLICATIONS

There are a number of club papers now being issued throughout the country, most of them are very good and deserving of praise. The clubs are to be commended for their issuance.

There are two suggestions that we would like to offer the editors of these club papers. The first is — insert in each issue something about your locality or area which may include rocks, minerals, pebbles, sands, fossils, or items of geological interest.

Second — have the business firms in your city run ads in the paper. These firms should include hotels, tourist courts, restaurants, movie houses, etc. etc. Such ads would not only finance the publication of the paper but together with the first suggestion would be of great aid to visiting collectors who may want to spend a day or two in your city.

ROCK FROM NEW YORK TUNNEL DUMPED IN JERSEY CITY

We are pleased to print the following note sent in by The Rev. William J. Frazer of the Westminster Presbyterian Church, Summit and Magnolia Avenues, Jersey City 6, N. J.

"I am wondering if you would want to put this information in *Rocks and Minerals* for the benefit of collectors in and around Northern New Jersey:

"Huge masses of rock which were blasted and dug out of the Brooklyn-Battery Tunnel (New York City) and hauled away to be dumped (probably in 1947) along West Side Avenue in Jersey City, have in them a number of interesting minerals. In this dump have been found apatite (a huge crystal which broke in trying to get it out but it will be cemented), calcite, feldspars in several shades, garnets in mica schist, muscovite, tourmalines, etc.

"The dump is very available and adjacent to the left side of the road, going north towards Broadway, in Jersey City. It is opposite an open field, on the other side of which is a cemetery. If collectors should fail to find it, a phone call to my residence (Journal Square 2-8270) will probably bring me as a guide and fellow collector."

IF YOU REMIT BY MONEY ORDER

We would appreciate if all those who remit by money order or postal note would make them payable to Peter Zodac, Peekskill, N. Y.

The reason for this request is that all money orders and postal notes must be endorsed by hand as made out and the editor's name must also appear on each one. Since the editor's name must appear on each money order or postal note, why not make it payable to him in the first place.

And if you want to know the county (foreign money orders demand it), it is Westchester.

REPRINTS AVAILABLE

There have been so many requests for reprints late'y that the following bit of information may be of value. They can be supplied and at the following rates:

100 copies	2 pages	$ 3.75
100 "	4 "	7.25
100 copies	6 pages	$10.25
100 "	8 "	12.75
100 "	10 "	15.00

All reprints must be ordered in advance, before the articles make their appearance in print.

ROCKS and MINERALS
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July - August
1949

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PETER ZODAC

COLOMBIAN EMERALD SOURCES

By RONALD L. IVES
Dept. of Geography, Indiana University, Bloomington, Ind.

INTRODUCTION

About four centuries ago, the world gem markets were flooded with surprisingly large emeralds, most of which were marketed from Spain. These acquired the name "Spanish Emeralds", even though a few appeared, at about the same time, in England.

Shortly it became apparent that these fine stones were not produced in Spain at all, but came from the newly-conquered lands on the west coast of South America. Many, if not all, were looted from the Inca cities of Peru, and represented the royal hoards of gems that had been accumulating for centuries. Appearence of a few stones in England resulted from attempts of Sir Francis Drake, and others, to "redistribute" the ill-gotten wealth of the early conquistadores.

When the Inca empire fell, the mines from which the emeralds were obtained were carefully concealed, and all evidence of the workings obliterated, both by human efforts and by rapid jungle growth. Spanish attempts to learn the mine locations were not successful, although they resorted, in more than one instance, to extreme methods, such as prolonged torture, in an effort to make the Indians talk.

Search for the fabulous emerald mines was prosecuted for many years, without success, by the Spanish. Finally, in about 1564, one of the ancient emerald mines was found, following a long and diligent search, near Muzo, Colombia, hundreds of miles from the looted Inca treasuries. This discovery resulted from the finding of an emerald "in place" in 1545, by Capt. Diego de Martinez de Panagos. From that time, under the direction of the local authorities, the search for the main deposits continued, until the rich mine at the Cerro de Itaco (near "Minas de Muzo"„ Fig. 2) was found by Alonzo Ramirez Gasco on August 9, 1564. Location of Colombia with respect to the other countries of South America is shown in Fig. 1.

Early emerald production, using slave labor, was considerable during the time that Colombia was a Spanish colony, but declined gradually, in part because of saturated markets, as time went on. When Colombia became an independent nation, following the revolt of 1824 (led by Simon Bolivar), the lot of the Indian improved, so that slave labor was no longer employed, and mining became less profitable for the owners. In the succeeding century, much of the emerald mining was sporadic, and the industry was afflicted with the practice of "high grading".

Locations of Modern Emerald Mines

Within recent years, various attempts have been made to revive emerald mining in Colombia. A large number of mines are now known, all in the district of Boyaca, a hilly and intensely mineralized region, north and slightly east of Bogota, the capital of Colombia.

Known mines in this area, as of 1947, are shown in Fig. 2, a summary map based on Colombian topographic sheets. It is almost certain that a number of other mines are being operated "sub rosa" in this area, for an extensive "black market" in emeralds was disclosed during the recent nationalization of the Colombian emerald industry.

Another secondary source of emeralds in many parts of the Andes is the looting of Inca graves. Apparently, emeralds were buried with Inca nobles, as mortuary offerings, perhaps to pay their passage to the afterworld; in much the same manner that the ancient Greeks placed an *obolus* in the hand of the corpse, so that he

could pay Charon for his ride across the Styx.

Geologic Environment

Whereas emeralds in most of the world are found in close association with granites, pegmatites, or micaceous schists; those of Colombia are contained in cavities in a lower Cretaceous limestone, which is both bituminous in places and erratically metamorphosed.

These lower Cretaceous limestones, which contain ammonite fossils, are found in many parts of the northern Andes, from Venezuela at least as far south as Peru. In most locations they are overlain by upper Cretaceous sediments, and beneath them, at no great distance, are intrusive rocks, which in some places are exposed, forming the "core" of the Andes. The geological problem is complicated, in many places, by the presence of volcanoes, some quiescent, others active within the last century or so.

Because of the wide extent of the geo-

Fig. 1 Summary map of South America, showing political divisions and major drainage.

logical conditions which exist in the emerald-producing areas, it is entirely possible that many other emerald sources exist, and that the present Colombian mines represent only a small fraction of the areas from which the Inca emeralds were obtained.

Mineral Associations

Emeralds, in the Muzo area, are commonly found in vugs in the limestone, in close association with crystalline pyrite, quartz, beryl, dolomite, and parisite. This latter mineral, named for Jose' Joaquin Paris, its discoverer, is a rare fluorocarbonate of cerium, lanthamum, didymium, and calcium; occurring in brown translucent hexagonal crystals. Until recently, Parisite was known only from the Muzo area.

In the various mines, emeralds are us-

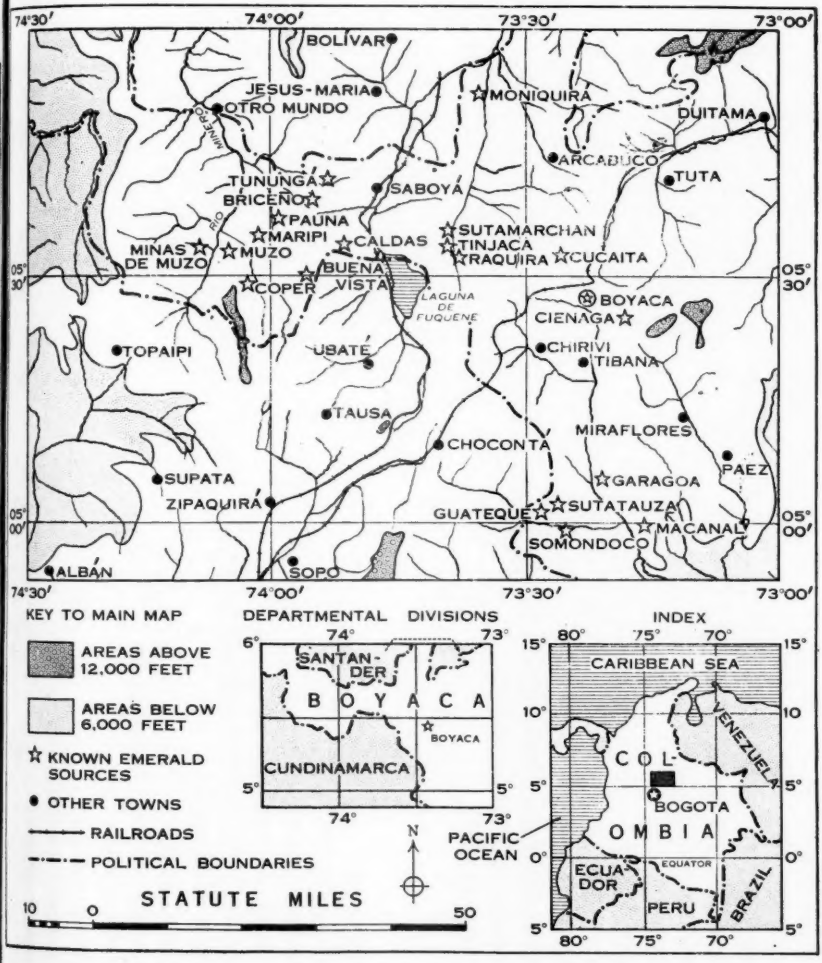


Fig. 2 Outline map of parts of the districts of Boyaca, Santander, and Cundinamarca, Colombia, showing locations of known emerald mines in 1947. Data from Colombian official sources.

ually found in the center of a complex crystalline sequence, consisting, on the exterior, of milky quartz, lined with small crystals of quartz ("verdacho"). Within this is a layer of brilliant yellow pyrite crystals, which surrounds a central crystalline agglomerate, from which emeralds are removed, sometimes with great difficulty.

Some placer emeralds have also been found within the area, and some beryl, not of gem quality, has been produced.

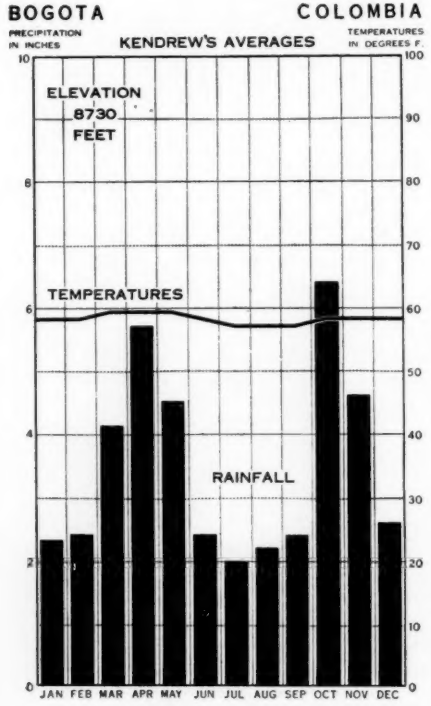
Mining Methods

The earliest mines at Muzo were of the shaft and gallery type, which caved in with annoying regularity, due to the instability of the rock, the frequent minor earthquakes, and the continual saturation of the soil. Heavy regional rainfall, plus violent cloudbursts in the higher areas, caused a serious water problem, aggravated by floods in the Rio Minero, which drains the Muzo area. Climatic conditions of the area, as compared with those of New York City, are shown in Fig. 3.

In more recent times, the emerald deposits have been worked by the "glory hole" method, in which large open pits are excavated, and the miners search the walls for possible cavities and veins. In such workings, although actual cave-ins are uncommon, miners are exposed to falling rock, and the dangers of wall-slumps. Many of the accounts tell of careless miners who have fallen from their rope slings, on the wall of the pit, to the floor, usually with fatal results.

Composition of Emeralds

Emerald is a clear green aluminum beryllium silicate, valuable as a gem only



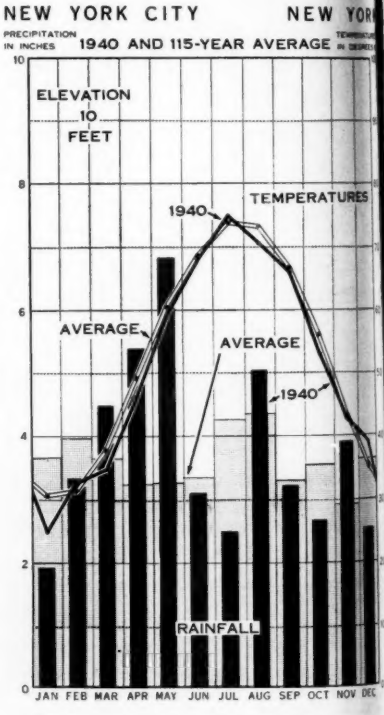


Fig. 3 Comparison charts, showing climates of Bogota and New York City.

when nearly perfect. Opaque and translucent beryl is plentiful, and is bought and sold by the ton; whereas gem green beryl (emerald) is sold by the carat, and is comparatively rare.

Composition of the emerald is well known, so far as the major components-beryllium, alumina, and silica — are concerned, but the nature of the coloring agent is still in dispute. Four analyses are given in Table I.

Various experiments show that the green color of an emerald can be produced (without doubt) by the presence of chromium oxide in relatively small quantities; and may be produced (some doubt) by the presence of iron salts. Lewy attributed the color to organic material, but this conclusion is no longer held, as emeralds retain their color almost to the point of fusion at temperature high enough to decompose the supposed or-

Ditching operations in the emerald workings of the District of Boyaca, Colombia. Moderate to heavy year-round rainfall here introduces a serious drainage problem, but also makes possible use of hydraulic processes. Outcrop in background is typical limestone, through which the emerald-bearing pockets are erratically distributed. Photograph from Banco de la Republica, Bogota, Colombia.

ganic colorants. Experiments by the chemists Wohler and Rosa showed that emerald color could be imparted to glass by the inclusion of about 1.3 percent of chromium oxide; a conclusion strengthened by recent investigations of the manufacture of synthetic gems.

Future of Industry

Although they produce what are generally regarded as the world's finest emeralds, the mines of the Muzo area have not been continuously profitable under private enterprise, due to a large number of factors, among which must be included labor costs, transportation difficulties, and high-grading. Present attempts to nationalize the mines, stabilizing the operations, so that operations may be continued through the "lean streaks" that occur in the output of almost any gem-stone mine, may solve the problem.

Because similar geological conditions occur elsewhere along the Andes, it is entirely possible that other deposits of emeralds may be discovered at any time. In addition, the discovery of any large Inca hoard might well depress the emerald market for several decades, offsetting much or all of the careful Colombian

Valley of the Rio Minero, which drains most of the Colombian emerald area. Although this area is at a high altitude, it is only about five degrees from the equator, so that dense vegetation of the banks, and steady flow of the river, are normal. Photograph from Banco de la Republica, Bogota, Colombia.

effort to make the emerald industry stable.

At the present time (1949), it appears that further development of the Colombian emerald mines is a good gamble, but a gamble nevertheless, compared to the risks involved, for example, in the opening of a copper or iron mine in the same area. Although a large proportion of the world's supply of emeralds, during the next half century, may come from Colombia, there is no assurance that the emerald industry will "pay off" so far as either the individual operators or the republic of Colombia are concerned.

TABLE I

Composition of Various Emeralds

Source Analyst	Muzo Vaquelin	Muzo Klaproth	Muzo Lewy	Siberia Dumeril
Silica	64.5	68.5	67.7	67.0
Alumina	16.0	15.7	17.9	16.5
Beryllium	13.0	12.5	12.4	14.5
Chromium Oxide	3.3	.3	...	...
Iron Oxide	...	1.0	...	1.0
Magnesia	...	...	.9	...
Soda	...	...	.7	...
Organic Mat.	...	...	.1	...
Water	...	...	1.7	...
Totals	98.4	98.0	101.6	99.5

Map References

South America. 1/500,000, *Bogota Sheet*; Army Map Service, N-B-18-E, (AMS E 401) Washington 1941.

South America, 1/1,000,000, *Bogota Sheet;* American Geographical Society N. B-18, New York, 1945.

Geognostische Verhaltnifse des westlichen Colombien, H. Karsten, Vienna, 1856: Reprinted by Academia Colombiana de Ciencias Exactas, Fisicas, y Naturales, Bogota, Colombia, 1947.

Text Reference

Maria Hno. Apolinar, *Apuntos Sobre las Esmereldas,* Revista de la Academia Colombiana, VII, 1947, 324-327.

A PHOSPHORESCENT EXPERIMENT

Here is a little discovery that I recently made.

I held a piece of phosphorescent willemite under my Mineralight and then took it away to let the phosphorescence die out and then I held it under a stream of hot water and the phosphorescence built back up. This I repeated several times with the same results but after about 5 times under the hot water it died out and would not build up again. I then held it under the light again for a minute and repeated the same operation with the same results. I then did it over again and this time let the hot water build up the phosphorescence and then let cold water run over it which killed it immediately—when back under the hot water it immediately built up a beautiful phosphorescence again. Evidently the action of the hot water caused a movement of the electrons which in turn caused the phosphorescence.

Owen Hoffman,
Washington, Ga.

IRON HILL IRON MINE, N. C.

By C. HENRY KING
Box 109, Franklinville, N. C.

Iron Hill, located approximately four miles east of Asheboro, in the southern part of Randolph County, North Carolina, is a prominence that rises above the surrounding hills. It appears that all this terrain is part of the ancient Uwharrie Mountains now reduced to knolls. This in turn, is in the Slate Belt of the piedmont area. It will be noted that straight line distances are approximated and place names, other than towns, are local designations. This is because a topographical map is not available. Indeed, the publications of the U. S. Geological Survey illustrates that the majority of North Carolina has never been so mapped.

With the twofold purpose of recording information of the old iron mine located on Iron Hill and with the hope of finding mineral specimens, Mr. A. T. Saunders of Franklinville, N. C., Mr. Ralph McDonald of Ramseur, N. C., and the writer went to the location on December 4th, 1948. It is possible to proceed within one-quarter of a mile of the mine by car. From here on the road is impassable because of overgrowth and washouts.

Iron Hill is slightly saddleback and a shaft, trenches, and open pits are found on each prominence. There is much loose ore lying about on the old stock piles and even on the waste dumpes. The latter condition was caused by transportation difficulties which necessitated the selection of only the best ore. While examining the present day conditions, Mr. Saunders, life long prospector, related the history of the mine, as handed down to him, as follows:

"The mine was worked successfully from about 1849 to 1868 and the smelter to which the ore was taken was located at the mouth of Bush Creek and the junction of Deep River. This was at the village of Franklinville, approximately four miles east of the mine. The ore was hauled by mule teams. Hoisting at the mine was accomplished by hand and later by horse. When the main shaft reached a depth of eighty feet it is said the best ore was reached but ironically (no pun) they had to stop owing to the crude way of winding and hoisting; also because eastern mines were losing out to the newly developed mid-western deposits. The mine was abandoned and the company owners (unknown) went north. The period of the mine's activity spanned through the Civil War and this event may have had bearing on its abandonment."

"It might be interesting to note that a chair manufacturing company later used the smelting site as a base of operations and about 1917 the area was a scene of a rock crushing unit that utilized the surrounding country rock. A small quarry and a few concrete pillars identify the site. This area is now wild and overgrown as it the mine itself."

Iron Hill has been visited by mining engineers on various occasions, notably during both World Wars, to determine its possibilities. From all accounts the ore is suitable, but peace has, on both occasions wrote finis to the urgency. Mr. Saunders says that ore samples are even now being given a mill run by an interested company.

In view of the critical iron situation in this country wherein the steel companies have announced that more and more ore is being sought abroad, it is not unlikely that eastern mines such as this may see renewed activity.

Among the minerals noted at the mine were: Hematite, as platy masses; Limonite, as encrustations; Pyrite, as minute cubes; Quartz, as milky masses and as small Rock Crystals in cavities; and Copper indications in the form of iridescent stains of Chalcopyrite, etc.

One-eighth of a mile east of the mine workings, and still on Iron Hill, is a very large outcrop of Pyrophyllite which is interesting but does not appear to be of commercial value as the mineral is impure and heavily iron stained.

The writer wishes to thank Mr. A. T. Saunders for the history of the mine and Mr. Ralph McDonald for transportation to and from the mine.

THE FITCHBURG ROLLSTONE

By Prof. CHARLES PALACHE

Cambridge, Mass.

Rockingstones and Perched Boulders were such striking objects in the landscape and such utter mysteries to the early New England geologists who tried to explain their origin that there is a goodly literature about them. So we find many pages devoted to them in Hitchcock's *Geology of Massachusetts* which was published in 1841. He has pictures of several "rocking stones", and a list of big "boulders" on hilltop and in lowland. Among those listed was the big boulder which stood on the flat dome-shaped summit of the granite hill to the west of, and nearly four hundred feet above the town of Fitchburg, Massachusetts.

On page 374 of the Geology he says. "Poised upon the conical eminence of nearly naked granite, just south of the village of Fitchburg, called Rollstone Hill, lies a block of an entirely different sort of granite, about 45 feet in circumference, measured horizontally. Supposing it a cube its weight would be 112 tons. This block is porphyritic; which is not the case with the rock on which it rests . . . It seems difficult to conceive how running water should have been able to remove such enormous masses. Yet it is certain that all of them have been transported quite a distance . . . The boulder in Fitchburg that has been described, must have been brought several miles and across deep valleys . . . In contemplating this Sisyphean labor, however, we ought to recollect that a rock in water loses nearly half its weight."

While his book was passing through the press, Dr. Hitchcock began to get word of the theory of continental glaciers which Agassiz and others were developing; he even included a last minute, tentative chapter, called a Postscript, but put at the beginning of the text, which helped to explain some of the difficult problems of the drift. But he was not yet ready to conceive of a great glacier covering all the lands of the north, moving outwardly from the Canadian uplands for hundreds of miles and carrying upon it or within the ice sands and boulders of whatever rocks it had passed over. The rock of the Fitchburg boulder was known to Hitchcock as the *porphyritic gneiss* and he well knew that it underlay wide areas in southern New Hampshire. Today it is called the *Kinsman granite*. With square miles of this rock exposed to the north it is impossible to say just where this fragment came from. Torn from some undercut cliff it became a part of the moving ice stream; happened to be above this hill when the ice became stagnant; and as the ice melted away, the boulder was gently lowered and deposited on the naked hilltop. There it stayed for milleniums to be a landmark to Indian and Pioneer, and ultimately to give a name to its hill. Now it has been rudely disturbed and transported in quite another fashion.

The writer first saw the Rollstone in 1896 when he first went mineral collecting at Fitchburg and it was then in its original position. There was then a good sized granite quarry active on the eastern slope of the hill, above the valley town of Fitchburg. Well down on the opposite, western slope of the hill, quarrying had just begun. From year to year the headwall of the eastern quarry cut back into the hill and presently was so near the Rollstone that it was in danger. To save it, it was bound about with a heavy iron band and moved back some distance from the brink and set up upon a rough base of granite blocks from the quarry. Its appearance in 1905 is shown in figure 1; behind the students can be seen bits of the iron band and the foundation.

It proved that the granite exposed in the western quarry was of better quality

Fig. 1
The Fitchburg Rollstone in 1905. It had been moved but was still on the top of Rollstone Hill. A party of Harvard geologists.

Photo by C. W. BROWN

or cheaper to get out and moved, and so the older quarry was abandoned. The new quarry grew rapidly in depth and in the height of its headwall. I can remember quite well, although not by date, when the Rollstone finally stood on a narrow remnant of the original surface between the headwalls of the two quarries.

For the later history of the Rollstone I am indebted to Mr. Ken Wyatt of Fitchburg, agent and correspondent of the *Boston Herald and Traveller*. On the seventh of March, 1949, the *Herald* published the picture shown in figure 2 as part of an article describing the city. On writing to the paper about this picture I was placed in communication with Mr. Wyatt and to his cordial aid I owe the account which follows and the original photograph for reproduction. Mr. Wyatt published the photograph of figure 2, again in the *Boston Traveller* in the early edition of April 5 and much of the material which follows.

The Rollstone now stands in the upper Common of Fitchburg on Main Street, apparently intact. It bears a bronze plaque which is thus inscribed.

Rollstone Boulder

This boulder, carried by the last glacier from Mount Monadnock, N. H. to the summit of the hill whose name commemorates it, was for centuries a land mark to Indians and settlers.

Threatened with destruction by quarrying operations, it was saved by popular subscription and reassembled here, 1929—1930.
Weight 110 tons Porphyritic Granite

Fitchburg Historical Society
1937.

In his letters Mr. Wyatt gives further information. He states that when the quarrying operation had approached within a few feet of the boulder in 1929 a public subscription, substantially aided by funds of the city of Fitchburg was raised to undertake its removal which cost about $5,000. It was criscrossed with painted stripes and the squares numbered. After the band was removed the rifted appearance of the boulder was found to be misleading. Several dynamite charges failed to break or budge it. It was finally blown

Fig. 2
The Fitchburg Rollstone in 1949. It was broken in pieces and moved and reconstructed in 1929-30. It now stands in Fitchburg's Upper Common on Main Street.
Courtesy of Ken Wyatt, **Boston Herald**

over a 20 foot drop on to the original quarry working by a full keg of powder; but even then was not broken and finally had to be drilled and blasted. About two thirds of its original mass-the exterior marked pieces-were collected, carted down the hill and reconstructed, the center being largely concrete mixed with some of the fragments. It would be interesting to know whether the weight of the boulder stated on the plaque, 110 tons, which agrees so closely with Hitchcock's original estimate of 112 tons, was actually determined; it seems very improbable.

As Mr. Wyatt points out there are several inaccuracies in the inscription on the plaque. The "popular" subscription was very substantially aided by the city; the money to install the plaque was given by the late Alvan T. Simons of Fitchburg, not as it might seem from the wording by the Fitchburg Historical Society; and the boulder most certainly did not come from Mount Monadnock, where to the present writer's knowledge, there is no such porphyritic granite. It may have come from the Monadnock region to the northeast of the mountain.

The preservation of this fine monument of the Ice Age, even though it has lost much of its significance through removal from its original placement, is a notable achievement in conservation and a fine tribute to the civic conscience of the people of Fitchburg.

TRIP TO MEXICO — (Part 2)

By PETER ZODAC
Editor, Rocks and Minerals

6th Day—(Fri. April 16, 1948)

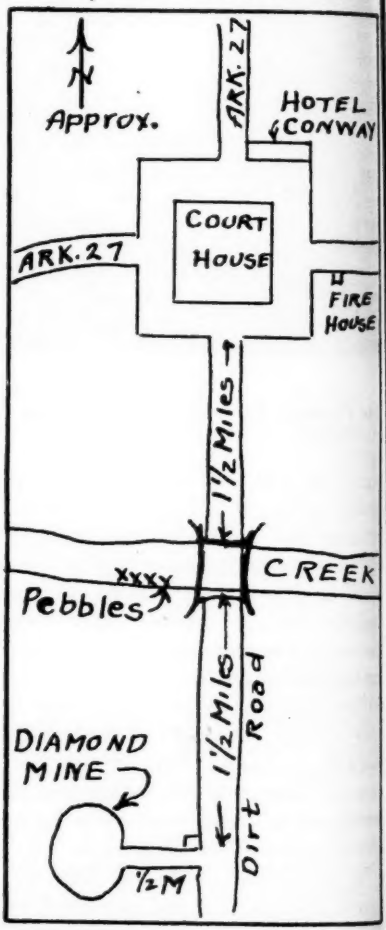
Don and I had spent the night in the little town of Murfreesboro, the county seat of Pike County, Ark., as we wanted to visit the nearby diamond mines for which the town is famous. The only diamond mines in the United States are in Murfreesboro.

After a good breakfast and supplied with information about the diamond mines and their location (obtained at the hotel) we were just about to get into the car when the fire alarm went off. Naturally we both jumped out into the street and began to look around but for several minutes not a soul (besides ourselves) was to be seen and all was quiet which was most unusual to us who living in large cities where at the first sound of a fire alarm there is instantaneous excitement. It was about 8:30 a.m. We must have stood alone for at least 3 minutes in the apparently "deserted" town when suddenly a large door flew open on a nearby side street (to the left) and out popped a fire engine loaded down with men whose appearance must have been a signal to the people for suddenly, as if by magic, men, women and children appeared everywhere so that the square was soon filled. The fire engine headed for the court house, made a left turn, went about 300 feet and stopped — where a small fire in one of the houses to the left of the street was soon put out. I was amused at the sight of one of the firemen clinging to the engine as it went by — he was a butcher and his white coat and apron made him look very conspicuous. It was a nice show while it lasted but we were happy that the fire was only a minor one.

The fire over and the engine returned to the firehouse, we got into our car and headed down the very street which had the fire.

1077.0. Mileage at Hotel Conway, Murfreesboro.

1078.5. End of bridge over a 100 foot wide creek. We saw a large number of pebbles and boulders along the southern edge of the creek and we stopped to investigate. The creek was full of nice quartz pebbles among them being basanite (black pebbles), chalcedony (red pebbles), jasper (brown) and many of them but some red pebbles also seen. An interesting pebble is a 1x1 inch specimen half of which is dark brown jasper and the other half black jasper (basanite), the line of contact is straight and distinct, dividing the pebble into two equal parts. A small specimen of milky quartz with tiny rocks crystals was also found. I believe



Rough sketch map showing location of diamond mines. (Not to scale.)

that Don collected an agate and a red carnelian at this locality. Many nice brown jaspers were found also along the edges of the road and along the path leading to the brook.

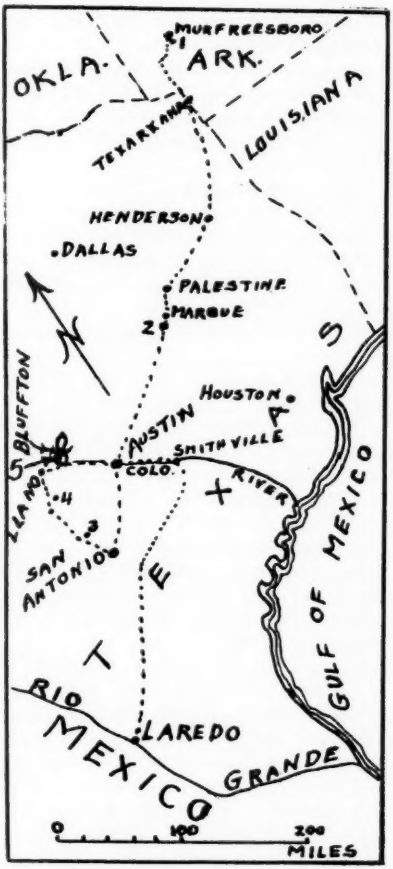
We continued our journey southward (now a dirt road from the bridge), turned right at a white house (1080.0 mileage) on a poor dirt road and stopped at 1080.5. miles—end of the road. We were at the diamond mines. A large tent was pitched at the end of the road—this was the office of Mr. A. I. Schweizer, the superintendent, who was present and who received us cordially. In our conversation with him we learned that the mine would reopen shortly (it had been shut down for some time), that some buildings would be erected as office, etc. (carpenters were busily at work 50 feet away), and other interesting information was obtained. "But where is the mine?" we inquired anxiously as this was our first visit to a diamond mine.

"There it is," pointing to a large field which began about 200 feet on down and past the tent, "and if you promise not to pick up even one pebble I will take you down to walk over it."

Of course we promised and down we went, crawled under a barbed wire fence which apparently encircled a fairly large field, and we were on the diamond mine. The field was very uneven and appeared to be roughly ploughed, some "furrows" being about 2 feet deep. There were no shafts, tunnels, or pits in the field, the "furrows" were the only diggings. The field was full, however of boulders and pebbles (many good red jaspers were seen) and loose crystals (possibly rock crystals) were also noticeable. True to our promise we made no attempt to pick up anything although some of the jasper pebbles were most tempting. It was a most interesting experience even though we went away without a single specimen and were further disappointed in not seeing at least one diamond in the office. There is another diamond mine in the area that contains some pits but as it also had been shut down for sometime, and not open to visitors, we made no effort to visit it.

1084.0. Murfreesboro courthouse again. Here we turned left on Ark. 27 and continued our journey southward passing through Nashville (near here is the world's largest peach orchard), Lockeburg (we turned left here on US 71), Wilton, Ashdown.

1159.0 Texarkana, a city on the Arkan-



Dotted line shows route from Murfreesboro, Ark., to Laredo, Texas, taken by the two collectors.

1—Diamond mine.
2—Petrified wood near Ridge.
3—Cascade Cavern.
4—Balanced Rock.
5—Site (in Lake Buchanan) of Barringer Hill which was once Texas' greatest mineral locality. Not visited as locality is now under water.

sas-Texas border line. The Arkansas section is the county seat of Miller County. The Texas section is the larger and is also the largest city in Bowie County. We got gas in the Texas section and in the terrain of a nearby field I collected some small brown jasper pebbles. We took US 59 out of Texarkana and on the southern section of the city saw a large gravel pit (on the right) but we did not try to investigate its pebbles as it was in operation and the customary request of permission at the office which often leads to a long conversation might take up too much of our time.

We were heading for Austin, Texas, which we had to reach this night. Our route was in a southwesterly direction.

1169.0. Sulphur River crossed. The river was about 100 feet wide and very muddy.

1182.0. Atlanta, we took Texas 43 here.

1233.0. Marshall, a small city, the county seat of Harrison County.

1240.0. Limonite specimen collected — a nice reddish brown earthy mass found in road cut.

1248.0. Sabine River crossed.

1273.0. Henderson, a nice little town and county seat of Rusk County. We had lunch here in the Randolph Hotel Coffee Shop and near the hotel I found a deep brown jasper pebble. We took Texas 26 out of Henderson.

1292.0. Turned right on Texas 315.

1296.0. Turned right on US 84.

1325.0. Rusk, county seat of Cherokee County. A deep brown jasper pebble found in the town near a gas station.

1355.0. Palestine, county seat of Anderson County. We arrived here at 4:45 p.m. but did not stop. Took US 79 out of the little city.

1409.0. Marquez, a little village on US 79.

1416.0. Ridge, a hamlet on US 79.

1417.0. Petrified wood locality. Along the right edge of the road (US 79) was a ditch 100 feet long, 15 feet wide and 2 feet deep that contained many good specimens of petrified wood. It was Don who found them first and it was quite a relief to find something different from jasper. It was also our first find of petrified wood on the trip. The wood was very common as loose pieces up to almost a foot in length and were dark grayish to brown in color.

Another interesting mineral found in the ditch was limonite which was common and which resembled brown jasper so much as to be collected as jasper. Many of the specimens were deeply pitted, one had a ½ inch hole through it. The pitted surface would have made a jasper rather unusual and this is why they were collected; later their hardness and streak identified them as limonites. Nice red jasper pebbles, however, were common in the ditch.

1429.0. Franklin, county seat of Robertson County.

1448.0. Brazos River (about 200 feet wide) crossed.

1526.0. Austin, capitol of Texas, reached 8:30 p.m. We both registered at Hotel Austin where we had rooms reserved. Before retiring for the night Don and I took a walk through the city —Austin is a beautiful city with handsome buildings and stores.

Mileage for the day—449.

7th and 8th Days

(Sat.-Sun. April 17-18, 1948)

We spent these two days in Austin attending the big Mineral show of the State Mineral Society of Texas that was held at Hotel Driskill (across the street from Hotel Austin). See "Texas Mineral Show goes over big", by Peter Zodac, *Rocks and Minerals,* July, 1948, pp. 598-601.

The only specimens collected during these two days were more jaspers — one a brown pebble and the other a red one. These were found in the large parking lot near the hotel.

Austin is the home of the University of Texas.

9th Day

(Mon. April 19, 1948)

Today we were the guests of Mr. J. J. Brown, President of the State Mineral Society of Texas, who took us on a tour of some cities and mineral localities. We left Austin at 9:30 a.m., on US 81, head-

ing southwesterly for San Antonio, 80 miles away. San Antonio is a beautiful city (the oldest in the State) and we spent several hours in it. Mr. Brown made sure that we saw all its important sights. We drove through its beautiful Breckenridge Park with its large zoo, sunken gardens, etc., stopped at Witte Museum where many fine minerals were on display, went through Villita Village (an old Mexican settlement), strolled along the San Antonio River, a beautiful but small stream along whose banks I found a small brownish chalcedony pebble. The river winds through the heart of the city and it is made more beautiful with winding well lighted walks along its edges while gondolas float on its surface. We went through the historic Alamo, the old mission church that was converted into a fort during the Mexican War when 150 Texans were beseiged by 4,000 Mexicans from Feb. 23 to March 6, 1836. A visit was made also to the First Parish Church (1732) an old Spanish Mission. The old Spanish Governor's Palace (fee 10c) was also visited. Another interesting place visited was the famous Buckhorn Curio Store (Museum), whose walls are adorned with so many heads and horns as to make one dizzy in trying to count them, as it represents specimens of practically every type of horned animal in the world. A unique feature in the store is the display of 32,000 rattlesnake rattles, many of them being fashioned into designs, all under glass. Other attractions in the store are Indian relics, mounted animals, etc.

Leaving San Antonio, we headed northward on US 87, heading for Fredericksburg. On the way we passed a large limestone quarry to the left of the road. This was MacDonald Bros. (Beckman) quarry; we did not stop as Mr. Brown said no minerals were to be found in it.

In southern Kendall County, near the little village of Boerne, the county seat, is Cascade Cavern. Signs along the road give directions for reaching it. We went through the cavern and found it most interesting. Our guide said it was ⅓ mile long and 300 feet deep. The guide allowed us to collect a few of the smaller stalactites which studded the roof in many places. Those collected were grayish in color and fragile; some had tiny grayish calcite crystals in them. The cavern was well lighted and open to the public.

Leaving the cavern and back on US 87, we turned right and again headed northward for Fredericksburg, a little town in southern Gillespie County. Here we saw Hotel Nimitz, made famous as the birthplace of Admiral Chester W. Nimitz, of World War II fame.

About 4½ miles north of Fredericksburg, in the famous red granite area of Texas, is Nagel Brothers granite quarry on Bear Mt. (See "Building stones of Central Texas", by V. E. Barnes, R. F. Dawson, and G. A. Parkinson. Univ. of Texas pub., 1947, p. 58). The quarry was about 100x200 feet in area and 50 feet deep. As it was in operation we did not spend too much time and especially so as no minerals were known in the quarry, according to the superintendent. The granite is made up chiefly of black flakes of biotite, reddish masses of microcline which gives the rock its color, and smoky masses of quartz. We collected some nice specimens of the red granite.

About ¼ mile past the quarry (to the north) and near the top of Bear Mt. is Balanced Rock whose location is noted on many maps of Texas. It was quite a scramble up the fairly steep sides of the mountain to reach it, as the rock is about ½ mile from the road; a well marked path, with signs, lead to it. I found the rock to be red granite, about 10 feet in diameter, and balanced on small pedestals. The mountain is strewn with granite boulders.

We continued on the road and within a few miles got on Texas 16, heading for Llano.

On the border of Llano and Gillespie Counties is an enormous rounded dome of reddish granite, known as Enchanted Rock. It can be seen for miles. Texas 16 passes about 2 miles to its right.

Llano, a pretty little town in central Llano County, is the county seat. About ¾ mile south of the town, on the farm of A. E. Hall, is a small graphite mine

which we visited. Judging from the size of the headframe over the mine, we expected to see a fairly deep shaft. Imagine our surprise to find that the inclined shaft went down only about 20 feet! The graphite occurs in the form of graphite schist, the orebody outcropping on the surface as a narrow vein.

About ½ mile south of the graphite mine is an occurrence of white crystalline magnesite that has been mined by Mr. Hall. We did not visit this locality but we were permitted to take samples from the small stock pile near the house (at the graphite mine).

Leaving the graphite mine we continued on to Llano where we visited two large soapstone grinding mills. At the first plant we collected from the huge stockpile nice greenish foliated masses of soapstone which came from a locality about 5 miles from Llano. At the second plant we saw no stockpile nor did we obtain any specimens.

In Llano are a number of granite polishing plants but the quarries are some distance away and we did not visit any of them.

We saw also in Llano, a large number of minerals that were laid out on top of a stonewall around a large house. Among the minerals seen were azurite, limonite (bog ore), magnetite, malachite, phlogopite, etc. etc. — some of them were of very good quality. All the minerals are said to come from Llano County.

After a very good dinner at Llano Hotel, we headed southeastwardly for Austin. It was dark by now so that collecting was out of the question. The road went past the Buchanan Dam which held back huge Buchanan Lake to the left (north) under whose waters lies buried Barringer Hill, a locality made famous by its rare minerals (see "My mineral discoveries since 1879," by Wm. Niven. *Rocks and Minerals,* Sept. 1930, pp. 74-75 and "A trip to Barringer Hill", by C. L. Brock, *Rocks and Minerals*. June, 1932, pp. 54-59). We passed through Burnet, county seat of Burnet County. We reached Hotel Austin, in Austin, at 9:30 p.m.

After saying goodbye and extending our thanks to Mr. Brown for a most enjoyable day and for other courtesies on the two previous days, we gathered up our specimens and entered the hotel. We made no record of the mileage but estimated that we had traveled 300 miles.

10th Day

(Tues. April 20, 1948)

It was my original plan to head for home this day but Don got me so interested in Mexico that when he continued his journey southward, I was in the front seat with him.

1537.0. Hotel Austin. We left the city at 8:00 a.m. on US 290. While still in Austin we crossed Colorado River which here is a small stream about 200 feet wide and not navigable.

1557.0. In the ditch along the right side of the road (US 290) we collected nice pebbles of brownish, also reddish, chalcedony and red jasper.

1562.0. We cross Colorado River again with the small village of Bastrop on its opposite side. In Bastrop, which is the county seat of Bastrop County, we took Texas 71.

1576.0. We again cross the Colorado River with the small town of Smithville on its opposite bank. In Smithville we took a road which went easterly where a petrified wood locality was said to be present. As this locality was given us by a member of the Texas Society, I believe it best not to divulge its location except to say that it is in Fayette County.

Our destination was a wide and deep ditch (known in Texas as an arroyo). In this arroyo we found many pebbles and boulders of chalcedony, jasper, and petrifed wood — all of good quality. The chalcedony was reddish in color, the jasper was deep yellow brown, and the petrified wood a dark brown. We went about a mile further up the road where we parked at a sharp bend. Then we headed down a slight slope to our left for an arroyo said to be a few hundred feet away in which more and better petrified wood was to be found. As I had already found some nice specimens in this area (our previous stop), I was not too keen to penetrate the thick underbrush into which

Don soon vanished and especially so as there were many interesting pebbles in the open field near the car. Perhaps 15 minutes went by, after Don disappeared, when suddenly a noise was heard and I looked up from my picking to see a man on horseback approaching me. For a moment I was startled but was soon calmed by his pleasant voice and courteous greeting. He had seen our car, with its Michigan license (Don was from Detroit and it was his car), then spotting me, rode over towards me. On learning that we were mineral collectors (I told him of Don), he told me we were in the wrong place but if we went a few hundred feet up the arroyo (pointing in the direction) we would come to some large stumps of petrified palmwood and could help ourselves. There were so many stumps in that area that it must be an ancient petrified forest, he further told me. With a friendly goodbye he turned around and was off and I never saw him again.

Dumping my specimens at the car and grabbing a larger bag, I rushed down the slope in the direction Don had taken and after some yelling soon contacted him. As he had found nothing of interest, he was as eager to visit the petrified forest as I. It was quite a task to find the right arroyo in the wooded area with its thick underbrush as there were more than two, all twisting and turning so that you did not know in which direction you were going. Finally after many disappointing tries, when we were just about to give up, we entered the right one — this arroyo was about 30 feet wide, 10 feet deep (both sides vertical), and 1,000 feet long (from where we entered it). We walked to its very end and about half-way in we began to run across petrified wood. At one place a log 1½ feet in diameter projected 3 feet from the bank and so firmly wedged you could not budge it. Then we began to run across palmwood stumps which looked like huge tulip bulbs. By the time we reached the end of the arroyo we must have seen at least 100, each about 1½ feet in diameter and 2 feet long. Some of the stumps projected out of the sides of the bank, some were buried in the bottom but many were lying loose in the arroyo; these stumps had a rough grayish exterior and a black-brown interior. Palmwood is one of petrified wood's rarest species and is in keen demand by mineral collectors. Several pieces of jasperized wood, brown in color, were also collected.

The arroyo was full of petrified wood, dark gray to brown in color, but only part of it was palmwood. Two grayish specimens were later found to fluoresce pale reddish under the Mineralight. Dark brown, reddish, and dark gray chalcedony pebbles were common; also brown and red pebbles of jasper.

Judging by the fair condition of the stumps, we may have been the first collectors to visit the locality and we left them in good condition, too, as we broke up only the smaller pieces which were unusually plentiful. Don took a number of kodachrome pictures but they may not have turned out well as it was too dark in the arroyo for good pictures (I never thought of contacting him about the pictures and when preparing this item it was too late).

We finally left the arroyo and after a rather "painful" struggle through the thick underbrush as we could not determine where we had entered and so took the wrong exit, we reached the car tired but very happy. It was one of the most interesting trips for both of us.

Smithville again where we had lunch and where I drank many, many glasses of water as it was a very hot day and the trip to the arroyo was a fatiguing one. Don did not enjoy his meal, however, as some very happy citizen of the town (whether it was natural or due to dizzy water, we could not tell) sat on his left and persisted in talking into his ear, much to Don's annoyance. After lunch we took Texas 95 out of Smithville, heading southward.

1619.0. Flatonia.

1630.0. Waelder, Gonzalez County. Brownish jasper pebble found here.

1647.0. Gonzalez, a nice town. We took Texas 200 out of here.

1697.0. Cibolo Creek crossed; at end of bridge we took Texas 97.

1702.0. Floresville, Wilson County. Collected here a deep yellow ferruginous quartz (looks like yellow jasper).

1706.0. Crossed San Antonio River (city of San Antonio about 25 miles to the northwest).

1707.0. Oil well is seen here about 100 feet to left of road. This is the first oil well we saw in Texas.

1721.0. We stopped to examine some yellow cacti flowers a number of which were growing about 100 feet to right of road; some deep brown jasper pebbles were seen here.

1726.0. N. Pleasanton, Atascosa County.

1742.0. Charlotte; more oil wells here.

1771.0. Fowlerton, La Salle County.

1775.0. Dark brown jasper pebbles and thin slabs of dark brown petrified wood found to right of road (Texas 91).

1798.0. Cotulla. We turned left here on US 81, the road to Laredo.

1862.0. Laredo, Texas. Reached the city at 7:15 p.m. where we remained for the night at Cortez Courts, on the northern outskirts.

Laredo, on the Rio Grande, is the gateway to Mexico which lies across the narrow river. After we had registered at Cortez Courts (got Cabin 14A), we headed southward for the city where we had dinner at Hotel Hamilton Coffee Shop, after which we took a walk through the business section of the city. Laredo appears to be half Mexican, judging from the large number of Mexican stores that we saw many of which had attractive and fascinating items on display. It was a novelty to me going through the Mexican business section.

Before retiring for the night, I went over my notes and found to my pleasant astonishment that we had been finding jaspers all the way down from Michigan almost to Laredo (later I found some in the city). Jaspers, therefore, are far more common throughout the east central part of the country than were ever suspected. The jaspers are mostly brown in color, the pebbles range from tiny up to 3x3 inches and more in size, and in some states as Illinois, Kentucky, Missouri and Texas (at Laredo we found out later), the jasper is so plentiful that it is used as gravel for road construction or in concrete for curbing, sidewalks, walls, etc. In many sections the people (even collectors) never realized that the brown pebbles used as gravel was jasper, much of it being good quality gem material. My habitual collecting of pebbles on this trip (and previous trips) was a blessing in disguise as its recording has opened the eyes of collectors to the vast amount of good gem quality jaspers in areas never before suspected.

Mileage for the day—325.

(To be continued)

Phantom "Church"

They say all good men go to church.
I confess I do not attend any church.
Nevertheless, I have a quartz crystal enclosing a phantom "church."

Whenever I peer into it, I feel imbued with awe, as I invariably do as I stand inside of a cathedral or of a humble, crude, little house of worship. Moreover I am deeply impressed as I scrutinize the phantom walls, conscious of the particles upon particles of silica constructed in the course of perhaps, millions of years — just as though I were marvelling at the structure of cathedral walls with blocks upon blocks of marble built through generations of toil.

Are not those tiny specks in the milky veil the praying parishioners in their pews?

What is this flood of light and the glistening streak in the far end of the phantom "church"?

What denomination does this church represent?

Does it matter?

Does not the consciousness of God's nearness suffice?

Grant that all the good people go to their churches, let me meditate only at the shrine of the phantom "church" in my own quartz crystal.

D. Ellis Lit

SUSQUEHANNA ONCE 4 MI. WIDE, 100 FEET DEEP IN MARIETTA AREA

Can you imagine the Susquehanna River, three to four miles wide and more than 100 feet deep, flowing at much higher levels and much greater speed over all of what is now the town of Marietta, Penn.? It did — at one time.

And can you imagine icebergs bigger than houses rushing down that powerful river in scores?

They did—many millions of years ago. That's what nearly 200 scientists from the United States and Canada reported yesterday on a field study of the Appalachian Drainage System and the Susquehanna River's Pleistocene terraces. The field trip centered around the vicinities of Chickies Ridge, Mariette, Marietta Depot and the Highspire gravel pits.

The trip was the wind-up event of the 15th annual Field Conference of Pennsylvania geologists which convened here for three days to study Lancaster County's origin hundreds of centuries ago. The scientists were the guests of the Department of Geology, Franklin and Marshall College, Lancaster, Pa.

The leaders pointed to the river's Pleistocene terraces and explained that they are actually the banks of the old river.

They are, incidentally, the principal sources of gravel in Pennsylvania.

The various levels of the terraces indicate the former size and levels of the river many millions of years ago, it was shown. The Marietta Depot, the leaders pointed out, rests on one of the terraces. The road around the Depot is built on another, slightly higher, terrace, while some 250 feet to the northeast is another terrace, higher than either of the other two.

Between Highspire and Marietta, these terraces are formed by gravel.

The once huge river — formed by the melting waters of vast ice flows or glaciers which extended as far as the Missouri River and as far south as Sunbury — deposited the gravel in successive flows at various levels.

In this gravel, however, the geologists made another spectacular find. Here were huge boulders — ranging from 20 to 30 tons each.

The river alone could not have carried them. How did they get there, in with the gravel?

They were carried there in icebergs big as houses, explained F and M's John Hall Moss and Dr. Richard M. Foose, two of yesterday's leaders. The icebergs, wedged against the banks, subsequently melted and deposited their giant boulders in with the gravel deposits.

Smaller pebbles were also found in with the gravel. These, said Dr. Howard Meyerhoff, new permanent secretary of the American Association for the Advancement of Science, and another of yesterday's leaders, made a long journey to Lancaster County, coming from as far as Canada.

But why did the Susquehanna take the "hard way" through the mountains — as it did at Chickies Rock — instead of skirting them? That was another question the scientists tackled yesterday. Most of them generally held that the area at one time was a flat, pancaked plain at sea level. Then the earth, supported by tremendous underground disturbances, pushed itself thousands of feet into the sky.

But the rivers had already cut their channels and, instead of forming new ones around the great masses of rock which were to be known as the mountains, simply "stayed in the groove".

Lancaster, Pa., *New Era*—Monday, May 30, 1949.

Appreciates Our Efforts!

Editor R & M:

Enclosed find check for another year.

I do appreciate your efforts in issuing a really great magazine for us rockhounds. Wishing you and *Rocks and Minerals* every success!

Verne A. Simons,
Jonesboro, Ind.

June 3, 1949

WORLD NEWS ON MINERAL OCCURRENCES

Items On New Finds Are Desired. Please Send Them In.

Alabama: Rock crystals, clear to slightly reddish from clay inclusions, occur in the soil about 1½ miles east of Center, Cherokee County, Ala. Once the crystals were quite plentiful on the surface of the ground but now they are scarce as many have been picked up.

Arizona: Mr. Edison Thacker, President of the Squaw Peak Copper Mining Co., has sent *Rocks and Minerals* another assortment of minerals from their copper mine near Camp Verde, Ariz. Among the minerals were beautiful specimens of tarnished massive chalcopyrite, some more of the attractive radiated molybdenite for which the mine is famous, and some small but lustrous striated cubes of pyrite in matrix.

Mr. Thacker has prepared an interesting article on the mine which appears in this issue.

Arkansas: Dainty little doubly terminated rock crystals similar to the Herkimer County "diamonds" of New York, occur at Mena, Polk County, Ark. The Mena "diamonds" are of poorer quality compared with the New York specimens which are "tops" among rock crystals.

California: One of the most noted localities in the country for dumortierite is near Dehesa, San Diego County, Calif., where beautiful specimens, violet to violet-red in color, may be found. Radiated-fibrous masses associated with quartz and other minerals are especially attractive.

Colorado: The recent pitchblende strike at the old Ghost town of Caribou, Colo., may prove to be America's largest uranium deposit. Caribou, in southwestern Boulder County (near Nederland), has long been forgotten. The old Caribou mine was opened up in 1869 by Sam Conger who had come down from Alaska in search of silver. He found silver and Caribou soon became an important silver mining camp. Among the minerals that had been found in the Caribou mine (in Caribou) were chalcopyrite, galena (silver bearing), gold (native), pyrite, silver (native) very common and in good specimens, sphalerite, and recently, pitchblende.

Connecticut: A popular locality for many collectors is the old abandoned barite mine near Cheshire, New Haven County, Conn., where good specimens of white platy barite coated with drusy quartz and green malachite are common. When the specimens are associated with red sandstone they often make very attractive specimens. The mine is on Jinny Hill, about 1½ miles southeast of the business section of Cheshire.

Delaware: Near Brandywine Springs, New Castle County, Del., sillimanite occurs in large compact-fibrous masses. The mineral is especially common in the hills to the east, between the Springs and the city of Wilmington. Sillimanite is so tough that large masses can be broken only with difficulty, using a sledge hammer.

Florida: Mrs. Rena Allen, of Daytona Beach, Fla., sends in the following information for a locality at Gainesville, Alachua County, Fla., where small grayish spheres of chalcedony were found on gray chert.

"The Gainesville building stone just lays all over a lot of cow pastures; they are trying to dig it out so they can grow something else besides rocks. We had to crawl thru a fence to get to the pile of blocks. Some of these blocks had cavities of drusy quartz, others had the chalcedony (and we were without our big hammer). There were tons of rock in the piles which they sell at $7.50 a load. They had to dynamite a lot of the rocks before they got them out of the ground."

Georgia: An interesting occurrence of beryl is reported in the May-June, 1949, issue of the Georgia Mineral Society *News Letter* (p. 15). The report is as follows:

"Mr. Chapman has drawn a sketch of a beryl crystal discovered in pegmatite of Lithonia granite at Arabia Mountain in DeKalb County, Ga. The crystal was discovered by a student at Emory and shown to us by Mr. H. E. Cofer. Although exhibiting very good natural form, the

beryl seems to replace feldspar."

Idaho: Mr. C. H. Thomas, of Wayan, Idaho, has sent to *Rocks and Minerals* a number of interesting petrified wood specimens from a locality in his area. Along with the specimens came the following bit of information:

"I am sending you by parcel post some specimens of Tempskya (petrified wood) found in northern Caribou County, on the Williamsburg Bench to the southeast and east of the Wayan post office. The cone-shaped specimen with eyes (stems or steles) is the end of a tip, while pieces with the eyes absent is a mass of roots and part of base. Root structure took over in the lower part of the plant, while steles, like branches on a tree, extended to upper portion. Brown pieces has been exposed to the elements, it probably has been bleached through and through, and with it reached a state of disintegration so that if you should attempt to cut it, it would more than likely break and crumble.

"The Tempskya was first classified as a genus by Corda in 1845, and was named after Friedrich Tempsky, who had found several specimens near Neupaka, Bohemia. Later specimens were found in Russia, Germany, France, and England in Europe, and in Maryland and in some sections of the Rockies, but never in such appreciable quantities and in such fine state of preservation as were found about a decade ago in southeastern Idaho.

"In Professional Paper 186-F, American Cretaceous Ferns of the Genus Tempskya, by Chas B. Read and Roland W. Brown (both of the Smithsonian Institution), thirty-nine publications are referred to as containing descriptions and discussions on the genus Tempskya. Dr. Henry N. Andrews of the Missouri Botanical Garden and professor of paleobotany in Washington University, St. Louis, Mo., has, undoubtedly, made a more thorough and exhaustive study of this peculiar fern of Cretaceous times than any of his predecessors or contemporaneans".

Illinois: A new occurrence for witherite has been found in Illinois by E. A. Brecke, of Rosiclare, Ill. A letter dated May 26, 1949, from Mr. Brecke to *Rocks and Minerals* reads as follows:

"Witherite was first noted by myself in 1943 in Mahoning Mining Co.'s West Green Mine. I did not make a serious effort at the time to study the occurrence as it had no economic value. During the past year the mineral was noted in the Minerva Mine in Cave in Rock district. It has been studied by Mr. Nachawaki of the Missouri School of Mines. The mineral occurs in greater abundance in the Minerva Mine than in any other I have studied. It occurs in white to buff crystalline masses showing the hexagonal cross section which is due to twinning. I have several of these twins which measure 3 inches in cross section. My studies this year in the Mahoning mines have revealed several occurrences in the above mentioned Green mine. Some of the material is similar to that of the Minerva Mine but the outstanding occurrence is a small crystalline aggregate which shows a sharp hexagonal pyramidal termination. It is difficult to distinguish them from the quartz crystals we obtain in the other mines except for the hardness and specific gravity."

All the above are fluorite mines located near Cave in Rock, Hardin County, in southern Illinois.

Indiana: In the noted Wyandotte Cave at Wyandotte, Crawford County, Ind., occurs calcite which phosphoresces bluish-white under the Mineralight. The calcite is found in coarse crystalline masses and as small dogtooth crystals, both forms being brownish in color.

Iowa: In the famous geode locality at Keokuk, Lee County, Iowa, the following are some minerals which have been found in the geodes: calcite (colorless crystals), celestite (bluish crystals), dolomite (pearlspar), goethite (tiny black crystals), kaolin (white earthy masses), millerite (fine metallic hairs), pyrite (brassy crystals), quartz (rock crystals), siderite (brownish crystals), and sphalerite (black crystals).

Kansas: Very nice transparent selenite crystals, varying from ½ up to 2 inches in length, occur in a road cut ¼ mile south of a filling station in the west edge

of Brookville, Salina County, Kans. Reported to *Rocks and Minerals* by D. E. Wells, of Salina, Kans., who also sent in a number of fine crystals.

Kentucky: In the glass sand deposits of Tip Top, Hardin County, Ky., magnesite is found in fine granular masses.

Louisiana: Although Louisiana is noted for its oil, salt, and sulphur deposits, it has not many mineral localities. One of the best known localities is the salt mine at Belle Island, in St. Mary Parish, where barite, chalcopyrite, pyrite and sphalerite are found in crystalline masses, and of course, halite, which often are of very fine quality.

Maine: A locality which may be new to many collectors as it is to the Editor of *Rocks and Minerals*, is Pound of Tea Island, Casco Bay, Maine (near South Freeport, Cumberland Co.). The locality has furnished a very fine specimen of green crystallized and massive epidote with long slender rock crystals which was obtained from an eastern dealer. If any reader can furnish some information on the locality would he please send it to *Rocks and Minerals?*

Maryland: Dr. Titus Ulke, of Washington, D. C., reports the finding of dufremite, a greenish hydrous iron phosphate, collected by Frank L. Hess, as small crystals on septae of clay-ironstone concretions found in clay pits near Laurel, Prince Georges County, Md. It occurs also at Greenbelt in the same county.

Massachusetts: Learning of the Editor's interest in pebbles, Mr. A. W. Dixon, of Foxboro, Mass., sent him two large shipments consisting of hundreds of pebbles gathered from almost every ocean beach in his state. Two of the localities for the pebbles are islands which are of special interest.

Cuttyhunk Island, Dukes County, Mass. —Epidote as greenish veins in gneiss, microcline as flesh-colored masses in granite, and dark red jasper.

Nantucket Island, Nantucket County, Mass. — The beach at Siasconset furnished the following pebbles: basanite (black), epidote (greenish), jasper (deep red), microcline (reddish) in granite, and rock crystals (tiny crystals in milky quartz).

Michigan: The gypsum mines of Grand Rapids, Kent County, Mich., furnish very fine massive specimens of pink gypsum which take a beautiful polish so that they are much used for ornaments, book ends, paper weights, etc. This is, perhaps, the most noted locality in the country for gem quality pink gypsum. The locality also furnishes beautiful cabinet specimens of colorless crystallized selenite imbedded in the pink gypsum.

Minnesota: In the last issue we announced in these columns the finding of a large thomsonite specimen near Grand Marais, Minn., by Howard E. Jackson, of Moose Lake, Minn. A letter dated June 5, 1949, from Mr. Jackson reads as follows:

"I just received my May-June issue of *Rocks and Minerals* and am very well pleased with your "World News on Mineral Occurrences". The following additional notes may be of some interest to your readers. First there are the important iron mines both west and north of here. Next in importance, I think, are the granite quarries at St. Cloud and Braham; quartzite from around Mankato and New Ulm with catlinite at Pipestone. We find some very nice brown petrified wood at Fairmont and very good staurolite at Little Falls which is almost jet black when polished. And as everyone knows we have the most beautiful agates, and from the north shore where I found the large thomsonite we get some very nice mesolite, prehnite and lintonite."

Mississippi: Almost every state in the Union furnishes nice agates so it is not surprising that Mississippi also has them. Grayish, banded, waterworn pebbles occur at Wesson, Copiah County, Miss., of which a number have been donated to *Rocks and Minerals* by Waldo E. Ford, of Wesson.

Missouri: At Stanton, Franklin County, Mo., is a pyrite mine which has produced some very nice white to yellowish barite crystals, colorless selenite crystals, pyrite crystals, smoky quartz crystals (some doubly terminated), and amethyst crystals.

Montana: Alder Gulch, Madison

County, Mont., is a locality for very fine dark red, gemmy, waterworn pebbles of garnet (pyrope), many of which have been cut and polished.

Nebraska: In 1940 or 1941 a 46,000 gram meteorite was discovered on the farm of Joseph W. Vrana, near Linwood, Butler County, Nebr. This Linwood meteorite is a coarsest octahedrite with many silicate inclusions. A 4-page illustrated paper describing the meteorite was released in May, 1949, by the U. S. National Museum, Washington, D. C. The authors of the paper (No. 3242) are E. P. Henderson and Stuart H. Perry.

Nevada: The first occurrence in North America for svanbergite (a rare member of the alunite group) is the Dover andalusite mine, 12 miles northeast of Hawthorne, Mineral County, Nev. The mineral occurs in well formed pale yellow to reddish brown crystals imbedded in, or implanted on, green pyrophyllite. The occurrence is described in the Jan-Feb., 1949, *American Mineralogist,* "Svanbergite from Nevada," by George Switzer, pp. 104-108 (Dr. Walter F. Hunt, Univ. of Mich., Ann Arbor, Mich., is the Editor of the Am. Min.).

New Hampshire: One of New Hampshire's many interesting localities is the old abandoned molybdenite mine (Lincoln mine) in Westmoreland Township, Cheshire County. The mine used to produce and with search one can still find on its small dump nice specimens of foliated molybdenite in massive smoky quartz as attested by a recent visit to the locality by some members of the Keene Mineral Club (Mr. Julian Wetherbee sent *Rocks and Minerals* a fine specimen). A letter from the Secretary of the Club, Mrs. D. S. Pitfield (44 Colony Court, Keene, N. H.) reads as follows:

"Relocating old mines is a hobby of mine as well as collecting minerals. No one around here seemed to know its exact location although it was a known fact that there was such a mine, it having been mentioned by Jackson (1844) in his report on the Geology and Mineralogy of the State of New Hampshire, also in Hitchcock's Geology of New Hampshire. So we went to work on old maps (our public library has a fine collection of them) and at the Registry of Deeds, then with the Geological Survey map we got an approximate location and started out. We finally ended up at the home of Mr. John Hutchins who proved to be a gold mine of information.

"Mr. Hutchins is a rather old man who still lives on the farm where he was born, which adjoins the Lincoln property. He not only showed us the mine but in addition told us some amusing stories about it and Mr. Lincoln.

"His explanation of the tunnel below is that Mr. Lincoln once dreamed that there was gold in that particular spot and drove a tunnel in an effort to find it. Mr. Hutchins says when he was a boy that it was possible to walk into the tunnel and according to him it goes in about 100 feet. The fact don't check with the rumor but it is an amusing story. He also told us that there was an outcropping of molybdenite on his farm and offered to show it to us, however it was nearly dark by then so we didn't get to see it."

New Jersey: At Beemerville, Sussex County, N. J., is a deposit of nephelite-syenite which has been known for many years. The deposit contains a number of minerals of which sodalite has created the most interest due to its brilliant red orange fluorescence. Laurence L. Smith (*American Mineralogist,* April 1937, p. 305.) says: "In the hand specimen the dark gray sodalite (from Beemerville) cannot be distinguished from the nepheline, but under ultra-violet light its distribution can be readily observed. It shows as brilliantly glowing irregular patches on the broken rock surface and as thin seams or veinlets intersecting the rock."

A nice specimen from the locality was sent *Rocks and Minerals* by Merton McKown, of So. Ozone Park, N. Y. It consists chiefly of nephelite and sodalite (both dark gray), small black crystals of aegirite, and small chocolate-brown crystals of titanite.

New Mexico: A locality which used to produce very fine specimens of gem quality opalized wood is near Hot Springs, Sierra County, N. Mex. The wood is

milk-white in color but some are stained brown. Some specimens had attached to them long white tufts of very fine fibrous material (soft and easily separable like asbestus) — this is fibrous opal.

New York: A recent visit to the old abandoned arsenic mine near Carmel, Putnam County, N. Y., by Theodore Fredericks and Adolph Koerber (both of Brooklyn, N. Y.) with the Editor of *Rocks and Minerals,* resulted in the finding of some nice crystals of arsenopyrite in massive quartz. It was Mr. Fredericks who made the find (Mr. Koerber claims he is always lucky on field trips) and the two collectors went home with some nice specimens. Good specimens of scorodite were also found at the mine.

Interesting specimens of sphalerite and native sulphur, both in limestone, have been found at the Oaks Corners limestone quarry, Ontario County, N. Y., by Claude H. Smith, of Waterloo, N. Y.

North Carolina: Rocks and Minerals is indebted to C. C. Curtis, of Corpus Christi, Texas, for a clipping taken from the Sunday, March 20, 1949, edition of *Journal and Sentinel,* Winston-Salem, N. C., which describes what is believed to be the richest tungsten deposit in North America. The deposit is near Townsville, Vance County, N. C., and was discovered in 1942 by two brothers, Joseph and Richard Hamme. The vein matter is dominantly quartz with much fluorite interbanded. The chief ore mineral is huebnerite but considerable scheelite is associated with it. The deposit is now being mined by the Tungsten Mining Corp. but it is feared that it may be lost if the proposed Buggs Island Dam is built as its waters would cover the area for miles around.

Mr. Curtis' interest in the tungsten deposit is twofold. He was born and raised within 20 miles of the mine, and the mine superintendent, Roland Richmond, is his nephew.

A most interesting article on the deposit appeared in the March-April, 1945, *American Mineralogist,* "Tungsten deposit near Townsville, North Carolina", by William A. White, pp. 97-110.

North Dakota: Nice specimens of golden yellow drusy calcite crystals on dark gray compact limestone come from the Badlands, Billings County, N. D. One of these specimens was sent to *Rocks and Minerals* by Mrs. Paul A. Bens, Aberdeen, S. D.

Ohio: One of the world's famous localities for celestite is Strontian Island, Ottawa County, Ohio (In Lake Erie). Beautiful crystals and crystallized groups, of a bluish tint, have been found in the limestone of the island.

If any reader has visited the locality recently, *Rocks and Minerals* would appreciate some notes on the occurrence.

Oklahoma: Very fine selenite crystals are found in the Glass Mts., Major County, Okla. The Glass Mts. are hills which have so many selenite crystals lying on the surface that they sparkle in the sunshine as though covered with pieces of glass, hence the name.

Oregon: Very nice specimens of opalized and jasperized woods are found in Secret Valley, Lake County, Ore.

Pennsylvania: Howard Hamilton, of Vandergrift, Penn., is one of the most active collectors in the Keystone State. He is covering very thoroughly the mines and quarries of the southwestern part of Pennsylvania and has collected many nice specimens. One locality which he has visited on a number of occasions is the New Enterprise Stone & Lime Co. quarry at McConnellstown, Huntingdon County, where nice specimens of the following were collected: aragonite (groups of tiny white but stained yellow crystals), calcite (colorless crystals), dolomite (pink crystals), fluorite (purple crystals on calcite), and pyrite (tiny crystals). All minerals were found on gray limestone, the rock of the quarry.

Rhode Island: An interesting locality for actinolite (hornblende) is Oaklawn, Providence County, R. I. where are found very nice green slender crystals in talc.

South Carolina: Very interesting specimens of limonite after wood are to be found in a small excavation (dug for road material) near Kershaw, S. C. An article on the occurrence has been sent in to *Rocks and Minerals* by Horace W. Slocum, of Rock Hill, S. C., which will

appear in an early issue of the magazine.

South Dakota: The Peerless feldspar mine, near Keystone, Pennington County, S. D., furnishes nice specimens of cream-colored fine crystalline lepidolite

Tennessee: A mineral which was first found in Tennessee is lorettoite, an oxy-chloride of lead, occurring in honey-yellow bladed masses. Named after the locality where first found Lorretto, in Lawrence County, Tenn.

Texas: What was once Texas' greatest mineral locality, Barringer Hill, is now no more. A few years ago when Buchanan Dam was built the waters of Lake Buchanan rose to cover the noted locality and many more square miles of heretofore dry land.

The locality was famous for its rare earth minerals contained in a pegmatite dike cutting pre-Cambrian granite. The rare earth minerals were compounds of beryllium, cerium, erbium, thorium, uranium, yttrium and other elements. The minerals found included albite, allanite, antimite, calcite, cyrtolite, fergusonite, fluorite, gadolinite, galena, gummite, ilmenite, lanthanite, mackintoshite, magnetite martite, microcline, molybdenite, muscovite, nivenite, opal (hyalite), orthoclase, polycrase powellite, quartz, rowlandite, tengerite, thorogummite, yttrialite, etc.

Barringer Hill, where in 1889 William Niven discovered 3 minerals new to science — nivenite, thorogummite, and yttrialite — (see "My mineral discoveries since 1879," by William Niven, *Rocks and Minerals,* Sept. 1930, pp. 73-76) is in eastern Llano County, about 5 miles south of Bluffton, in central Texas. The locality was on the west bank of the Colorado River before the dam was built forming the huge artificial Lake Buchanan.

See also "A trip to Barringer Hill", by C. L. Brock, *Rocks and Minerals,* June, 1932, pp. 54- 59.

Utah: Unusually fine crystallized wulfenites have been found in the Tecoma lead-silver mine near Tecoma, Box Elder County, Utah. The mineral occurs in large masses of thin lemon-yellow transparent crystals.

Vermont: A letter received some few weeks ago from Gunnar Bjareby, of Boston, Mass., contains this bit of interesting information.

"If anyone asks you about collecting at the Carlton talc mine, Chester, Vt., it might be of interest that last summer I found the largest magnetite crystals I have ever seen from there. Some were very good. The largest crystal was about 1 inch, several ¾ inch. Let no one say that the good old localities are plucked bare."

Virginia: A nice specimen of a dark green actinolite-chlorite schist (greenstone) was sent to *Rocks and Minerals* by the Virginia Greenstone Co., Inc., Lynchburg, Va. A letter from Mr. S. B. Owen, Vice-President of the Company, gives this interesting information.

"Our quarry is located in the city limits of Lynchburg, Va., and we thought perhaps you would be interested in some of the buildings that used this material.

"The Old Quaker Meeting House on the outskirts of Lynchburg was built of this stone in 1757. In the adjoining grave yard there are greenstone markers dating back to 1790 and several are marked 1812. etc.

"This company was organized in 1931 and since that date we have been cutting and finishing the stone for architectural uses.

"We ship to almost every state in the country with several jobs in California and also Honolulu and Canada."

Washington: Near Washougal, Clarke County, Wash., very nice quartz minerals are to be found. A number received from Mrs. Nick Mueller, of Washougal, embrace grayish chalcedony, red jasper, and moss agate (dark gray chalcedony with deep red mossy inclusions).

West Virginia: Nice rock crystals have been found in a sandstone quarry at Berkeley Springs, Morgan County, W. Va.

Wisconsin: The Ives limestone quarry at Racine County, Wisc., is a noted locality for fossils, according to the May, 1949 issue of *The Trilobite,* official journal of the Wisconsin Geological Society (Milwaukee Public Museum, Mil-

waukee, Wisc.). Very fine trilobites and corals were found on the April 10th field trip of the Society, also botryoidal marcasite and sphalerite crystals.

Wyoming: Very nice moss agate occur near Casper, Natrona County, Wyo.

Alaska: A very nice specimen of amphibole asbestus (white fibrous tremolite) from Dahl Creek (Upper Kobuk River), Alaska, was recently donated to *Rocks and Minerals* by Frank H. Waskey, of Fortuna Ledge, Alaska.

Argentina: A new mineral, jujuyite, has been found in Argentina. It is an iron antimonate, dark-brown violet in color and forms compact or earthy masses rather pure or mixed with opal, chalcedony and remnants of effusive rock.

Jujuyite occurs as small veins in dacite lava near Doncellas, 50 km. S.W. of Abra Pampa, Province of Jujuy, northwestern Argentina. (Am. Min., Jan-Feb., 1949, p. 133).

Australia: Some very interesting pebbles have been sent to *Rocks and Minerals* by H. H. Batchelor, of Hughenden, Queens., Australia These come from the bed of the Flinders River which flows through Hughenden.

Among the pebbles from Hughenden are agate (reddish, banded), basanite (black), chalcedony (reddish, also grayish), jasper (red), rock crystals (colorless pebbles), and smoky quartz (rounded crystals).

Several small dark gray belemites (fossils) were also included in the shipment. These came from a locality 10 miles north of Hughenden where they are associated with gypsum in sedimentary rock which carries fossil shells as well as belemites. The locality is situated at the foot (within ½ mile) of the desert sandstone range.

Austria: The finest flos ferri specimens known are found in the iron mines of Eisenerz, Styria, Austria.

Flos ferri is the coralloidal form of aragonite.

Belgium: Klementite, a hydrous silicate of aluminum, iron, magnesium, and manganese, was first found at Viesalm, Belgium, where it occurs as dark olive-green scales in quartz veins. It was named after Dr. C. Klement, of Brussels.

Brazil: At Fundao, Espirito Santo, Brazil, are found nice smoky quartz crystals containing movable bubbles.

Canada: The abandoned apatite mines on Turner Island in Lake Clear, Renfrew County, Ontario, Canada, furnish very nice brownish and greenish apatite crystals embedded in salmon calcite.

Chile: Very nice turquoise masses are found in the copper mines at Chuquicamata, Antofagasta province, Chile.

China: Near Changteh, Hunan Province, China, dark yellow orpiment and red realgar are found.

Colombia: Parisite, a fluocarbonate of the cerium metals, was first found in an emerald mine of the Muso Valley, Colombia, over 100 years ago, by J. J. Paris, proprietor of the mine and after whom it was named. It occurs, at the emerald mines, as small brownish-red crystals in white cleavable calcite.

Cuba: Nice specimens of drusy green crystals of uvarovite (garnet) on chromite from the chrome mines near Moa Bay, Oriente Province, Cuba, have been obtained by Howard Hamilton, of Vandergrift, Penn. One of these specimens was sent to *Rocks and Minerals*.

Denmark: Near Nexo, in eastern Bornholm Island, Denmark, is located the Frederick quarry which has a copper vein. In this copper vein are found copper (native), galena crystals, chalcocite, chalcopyrite (the chief mineral found in the vein on the border between granite and sandstone), covellite, fluorite (small crystals, chiefly violet in color but gray and green also occur), and malachite.

Dominican Republic: Nice specimens of grayish chalcedony are obtained from the Nigua River, near San Cristobal, Dominican Republic.

Egypt: An air mail letter dated April 25, 1949, was received May 2nd, by the Editor of *Rocks and Minerals* — it was from Dr. C. H. Barlow, of Cairo, Egypt, who wrote:

"Last week I sent a small parcel to

you by messenger. He will post it to you from Washington or New York, and I hope it will reach you in good condition. It contains a few common minerals from one little spot in the Eastern Petrified Forest in the Wadi Khashib,Egypt.

"All of the little quartz specimens came from an area which I could reach from where I sat and they represent the colors which were commonest. The whole place was composed of these small pebbles. The other minerals all came from a ½ mile area nearby and you can diagnose them better than I can.

"About the alabaster I sent you before —"Eastern" alabaster is all onyx and yet we do have some true alabaster which I have been trying to get for you but haven't succeeded in doing so far. But I have succeeded in finding a small gold ore sample which I'll send at the first opportunity.

"I hope the package reaches you about the time this letter does."

The package arrived the next day and in contained a number of most interesting specimens The Petrified Forest assortment contained quartz specimens which included a small black basanite pebble; small chalcedony pebbles of brown, gray, reddish, and white colors (also a brownish gemmy chalcedony completely replacing a ¾ inch snail shell); a number of brown jasperized chert pebbles of odd forms some with large rounded cavities resembling miniature potholes (one specimen contained a removable ½ inch "grinder); small brownish jasper pebbles; milky quartz pebbles; moss agate pebble (black); thin slab of green plasma (from a small boulder); small gemmy rock crystal pebbles; brownish petrified wood; and several specimens of quartz conglomerate whose pebbles were milky quartz, brown jasper, grayish chalcedony, etc.

The specimens from the other locality consisted of calcite (calc tufa) — dark brown cellular mass; gypsum (selenite)— small, colorless, fibrous masses; and marl (brownish and cream-colored masses).

The Eastern Petrified Forest is about 12 miles southeast of Cairo, Egypt. (For further information on the Petrified Forest, see Dr. Barlow's most interesting article "A few disconnected observations upon matters geological, by an amateur in Egypt," *Rocks and Minerals,* August, 1947, pp. 703-709).

England: At Newhaven, near Youlgreave, Derbyshire, England, are found those deep brown radiating stalactitic masses of barite which often are seen in collections as thin polished slices and sometimes incorrectly labelled "petrified wood".

Finland: In the limestone quarries at Pargas, Finland, is found a pale green variety of hornblende (amphibole) which is called pargasite, after the locality. Pargasite is commonly found with phlogopite in calcite.

France: The opaque, brownish concretionary masses of opal which are found on Menil Montant (Mt. Menil), near Paris, France, are called menilite, after the locality. This odd form of opal was first found at the locality over 100 years ago where it occurred and still does imbedded in gypsum and in marl).

Germany: The most famous locality for selenite in Germany is Eisleben, in Saxony. The selenite occurs in very fine colorless tabular crystals up to 8 inches in length, loose and doubly terminated, also in groups. Some crystals have excellent moveable bubbles.

Greece: One of the most famous localities for gem quality smithsonite are the ancient silver mines of Laurium, Attica, Greece. The mineral is still found at the old mines in sea-green botryoidal masses.

Greenland: John O. Griesbach, of Duluth, Minn., sends in the following note on Greenland:

"I ran across the following item of probable interest to readers of *Rocks and Minerals*:

"Within recent months galena, 1,000,000 tons of it, has been reported just north of Scoresby Sound. This is enough to put Greenland up amongst the big lead producers — and the Danish government thinks enough of Lauge Koch's report to plan on thoro explora-

tion of the area and its water approaches during 1949."

The above from "Planetary Thrombosis" by Sidman P. Poole, *Journal of Geography*, February, 1949. The man, Lauge Koch, referred to was not mentioned otherwise in the article but is presumed to be either a geologist or geographer who has done considerable recent field work in the vicinity of Scoresby Sound which is located on the southeast coast of Greenland north of Iceland and nearly due west of Jan Mayan Island.

"One other well known occurrence of galena in Greenland as you know is that associated with the cryolite deposits at Ivigtut. I have three very fine galena and siderite specimens from Ivigtut, given me by a Coast Guard friend from Chicago who was stationed in that area during the recent World War."

Hawaii: John O. Griesbach, of Duluth, Minn., sends in the following interesting item:

"When I was stationed at Kauaii, T.H., in 1944 enroute from my wartime tour of duty overseas, I did considerable rambling around that interesting island. I picked up a number of fine petrological specimens for my collection, among which were several pieces of a peculiar "lapilli-rock" or scoria which had been cemented by two predominant minerals as a very thin druse covering and filling some open spaces, and appearing in part as botryoidal groups of m/m crystals, colorless to white in color. These botryoids were about 1/32 to 1/8 inch in diameter, averaging nearly 1/16th. I was unsuccessful in my attempts to identify the mineral in question so I sent a few small specimens suitable for m/m work to Mr. Bjareby, in Boston, for his inspection and addition to his collection. He in turn contacted Dr. Wolfe of Boston University and the mineral was subsequently identified as FAUJASITE, a rare zeolite—and according to Dr. Wolfe, not previously reported from the Hawaiian Islands. More recent communication with Dan A. Davis and Dr. G.A. Macdonald of the Volcano Observatory, Hawaii National Park, and the Geological Survey in Hawaii, has proved this fact of the mineral's unknown existance in Hawaii prior to this time. The other mineral yet unknown to me, and which appears as occasional tiny elongated crystals and groups of crystals, cream to white color, makes up perhaps 0.25% of the rock mass, or less, only a half dozen appearing on the surfaces of the two remaining specimens in my collection. Perhaps it will yield to cautious identification in the future. The individual lapilli of the rock are about ¼ inch diameter, composed of slightly vesicular basalt of brownish black to gray color. The specimens were derived from a local road-fill "quarry" in Kalepa Ridge, north of the village of Hanamaulu, on Kauai Island. The quarried material was used as coarsely crushed surfacing material for roads in a Marine encampment area in the vicinity of the race track about a mile north of Hanamaulu Bay and it was here that the rock was first noted."

India: Poonah, India, is famous for its very fine zeolite minerals which occur in basalt. Among these fine minerals are apophyllite (greenish), heulandite (pinkish), scolecite (white), and stilbite (pinkish). All these minerals occur in beautifully crystallized groups.

Iraq: It is reported that copper deposits containing 7.5 percent copper have been discovered in the northern part of Iraq.

Ireland: Pale yellow green and very dark green (almost black) radiated masses of wavellite are found on Spring Hill, Tracton, County Cork, Ireland.

Italy: At Traversella, Piedmont, Italy, very fine scheelite crystals are found in the magnetite iron mines. These crystals vary in size from very small up to 1 lb. or more in weight and are brownish in color.

Japan: Native copper, as small plates, occurs at Iwamigun, Fukui Province (Honshu Island), Japan.

Korea: Dark brown crystallized masses of siderite occur in the Rakuzun mine, Kokaido, Korea. This siderite is identical in color and form with that from the famous American locality, Roxbury Station, Conn.

Madagascar: Gem quality orthoclase (yellow, transparent crystals) occur in pegmatite at Itrongahy, in southern Madagascar. This orthoclase makes very beautiful gems when facetted.

Mexico: A locality for petrified wood is Cerro de Los Silicatas, in the vicinity of the city of Tlaxcala, Tlaxcala State, Mexico. Large grayish limb sections have been found here.

Nigeria: Nice waterworn, colorless crystals of topaz, occur at Rudos, northern Nigeria, Africa.

Norway: Very fine deep green gem quality amazonstone occurs at Kragero, Norway. The material takes a good polish.

Panama: Can any reader supply information on the mercury occurrence at Cruces, Panama? From an old collection was obtained a specimen containing tiny metallic globules of native mercury in a brown, friable earthy mass; it is from the Cruces locality.

Persia: An interesting pebble of black crystalline hematite has been recently obtained by *Rocks and Minerals.* It comes from Tumbak, a very small community in the Persian Gulf area located near Hormuz (Ormuz) Island, near which deposits of hematite are found.

Peru: Very nice quartz crystals (rock crystals and milky quartz) occur in the Rosario mine (silver-lead mine) at Casapalca, Peru.

Philippine Islands: Red jasper pebbles occur on the northern outskirts of Zamboanga, Mindanao Island, in the Philippines. The occurrence was noted by Ken Pugsley, of Pawling, N. Y., when his army outfit invaded the island during the late war.

Puerto Rico: White cleavable masses of barite, showing a radiated structure, occur at Barrio Llanos, Lajas, Puerto Rico.

Samoa Islands: Olivine occurs as greenish grains in basalt at Tutuila, American Samoa. (Pacific Ocean). A unique specimen from the locality is a diamond drill core of basalt containing tiny greenish grains of olivine that was donated to *Rocks and Minerals* by John O. Griesbach, of Duluth, Minn.

Scotland: Fine white crystals of harmotome occur at Strontian in Argylshire, Scotland.

Siam: Black waterworn pebbles of spinel occur at Pu Ploi, Siam.

Spain: The famous mercury mines of Almaden, Spain, furnish fine crystallized specimens of cinnabar. These mines are over 2,000 years old.

Sweden: The world's most famous locality for minerals are the manganese mines at Langban, Wermland Province, Sweden. More different minerals have been found here than at any other locality in the world; the zinc mines at Franklin, N. J., rank second.

Tasmania: Some of the finest crystals of crocoite known have been found in the Adelaide silver-lead mine at Mt. Dundas, near Zeehan, Tasmania.

Turkey: A 10-page publication titled "Mineral resources of Turkey" has been brought to our attention through the courtesy of Mr. T. Orchard Lisle. Editor of *The Oil Forum,* (11 W. 42nd St., New York 18, N. Y.). The paper covers chrome, coal, iron, copper, petroleum, etc. Copies may be obtained from the Turkish Information Office, 444 E. 52nd St., New York 22, N. Y.

Uruguay: Very nice chalcedony geodes containing water occur at Salto Orientalis, Uruguay. This type of geode is called enhydros, water agate, water geode, etc. When shaken the water can be heard splashing inside the geode.

Wales: Beautifully crystallized rock crystals occur on slate in the slate quarries at Festiniog, Merioneth, Wales.

Zanzibar: On the Island of Zanzibar, off the east coast of Africa, is found a reddish fossil gum called copalite. The copalite is interesting not only because of it curious "goose flesh" surface, so unlike that from any other locality, but also because it often encloses extinct species of insects. It is found imbedded in the earth at a depth averaging 3 feet and in masses from a few ounces up to 5 pounds in weight.

COLLECTING APATITE CRYSTALS AT DURANGO, MEXICO

By LOUIS W. VANCE
1002 Palm Ave., South Pasadena, Calif.

My companion on this trip was Earl Calvert, known to many ROCKS AND MINERALS readers. Earl is a veteran of many collecting trips to Mexico and fine specimens which he has collected are in museums and private collections all over the world.

We had driven to El Paso, Texas, from Southern California. After spending about half a day getting the car serviced, changing money and purchasing last minute items, we drove to the port of entry, Juarez, just across the Rio Grande. It took about an hour to attend to the formalities. Many Americans are unduly irritated at this delay, not understanding that the Mexican government has waived almost all regulations for entry. They simply require that the tourist permit be registered and that license and motor numbers and the number of tires be recorded. This is done to check smuggling.

It was about 3 p.m., when we headed south toward Chihuahua City. We had intended to camp somewhere along the road but the night was so fine and over an excellent highway we made such good time that we continued to Chihuahua, arriving about 9 p.m.

After spending a day seeking information we decided to visit Durango first to collect some of the fine apatite crystals for which this locality is well known. Inquiry indicated that roads were not too good so we stored the car and took to the railroad.

Our train arrived about midnight and with a suitcase in one hand and a knapsack in the other we joined the crowd and fought our way onto the already overcrowded train. A seat was out of the question as the train was so packed that there was hardly standing room. There were more people standing in the aisle than had seats. We were lucky and after a while we found a place at the end of the coach where we could put our bags and sit on them. There were frequent stops and each time we took on more passengers than got off. We found that the excessive crowd was due to a bull fight at Torreon with one of the most famous matadors in Mexico due to perform.

Of course sleep was out of the question so, as we puffed steadily southward, I passed the time watching the crowd. An amusing incident occurred when a young Mexican who had consumed too much beer decided he needed a drink of water. He slowly made his way down the crowded aisle, falling into the seats with each lurch of the train. As he righted himself each time he was profuse in his apologies. What with falling into the seats and apologizing to the occupants it took him quite a while to walk the length of the coach. Finally he reached the drinking fountain only to find it was long since dry. At this point the train rounded a curve and our friend collapsed at full length. No one made a move to help him as he lay there. The brakeman came along, looked down, and without a change of expression, carefully stepped over him. The conductor did likewise as well as several passengers. After a few minutes he pulled himself to his feet and returned uncertainly to his place at the other end of the car.

The trip was made uncomfortable by the clouds of fine dust which the train stirred up. It filtered through the double windows and at times it was difficult to see the length of the coach. Beer and pop were the only thirst-quenchers and quantities of both were consumed. The butcher had his stand in the next coach and each time he started out he had a full load but was never able to get through our car before selling out. Passengers in other parts of the train were forced to come and get their own, which made for a constant stream of traffic. It is excellent beer, too.

We arrived at Torreon, center of a rich agricultural district, at 11 a.m. We had lunch in a restaurant which for quality, service and cleanliness ranks with the best. After lunch we strolled around this clean, hustling city until our train for Durango was ready at 3 p.m. This part

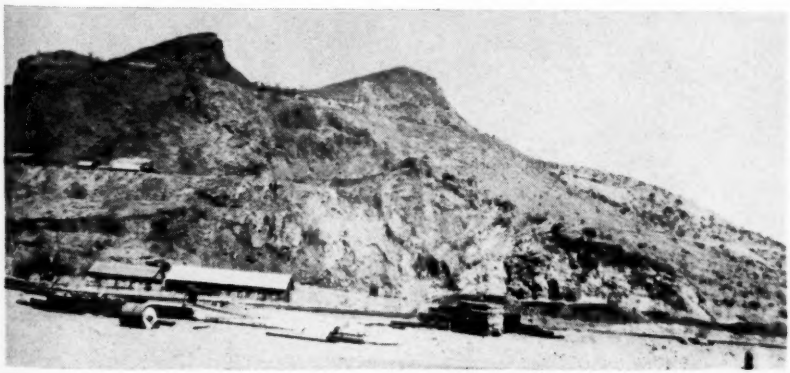
of the trip was more enjoyable — no crowds and little dust as we climbed higher. The country is semi-arid grassland and almost treeless. The principal industries are mining and stock raising. The large stock ranches are fenced by stone walls about 4 feet high laid up of field stone without mortar and extend for many miles. These walls are very skillfully erected and represent an immense amount of labor.

Durango was reached about 8 p.m. This is a city of about 50,000 in the western part of the state of the same name. The elevation is just over 6,000 feet which makes the climate ideal. It is far enough south that the winters are mild and the elevation makes the summers cool. The city boasts a fine cathedral and several churches, clean paved streets and some nice parks. Also there are several comfortable hotels.

The Cerro de Mercado (Hill of Mercado) was named, so the story goes, for a Senor Mercado who, shortly after the conquest, heard a rumor of a mountain of pure silver somewhere out in the wilds of Durango. So he made the long and hazardous journey from Mexico City and was disappointed to find that instead of pure silver the hill consisted of almost pure iron. The city of Durango at that time was merely a frontier post for defense against the northern Indians. The hill is but a mile or so from the center of the city so after obtaining permission, we took our collecting bags and hiked out. We were greeted by the superintendent who took us on a tour of the workings and then pointed out a likely place to look for apatite crystals.

Other minerals of interest are martite in octahedrons up to one inch on an edge, occasionally small groups of hematite crystals and stained quartz. Apatites, however, were our main interest. They occur here throughout the ore and also in a quartz dike that runs through the ore. To the operators of the mine they are a nuisance as a slight increase in the phosphorus content of the ore draws a penalty at the smelter. Apatite crystals occur up to I inch or more in diameter by 3 inches long and of a clear transparent greenish-yellow. The larger ones are almost invariably flawed and while showing good crystal form are cracked and checked internally. Occasionally one has an unflawed section near the tip so that a stone of 7 to 10 carats may be cut. These make nice additions to a gem cabinet although too soft to wear. Many of the smaller crystals up to ¼ inch in diameter by 1 inch long are perfect little gems, well terminated, beautifully clear and without flaw. Crystals larger than ¾ by 1 inch are relatively scarce. In the thousands we examined there were no more than a dozen larger (the largest 1½ by 3).

While the mine has some underground workings, the main work now is being



Cerro de Mercado, Durango, Mexico.

done in a great open pit. (see photo). The mountain is literally being taken apart by hand. For a few minutes I watched a drilling crew at work. The drill was on a length of 2-or-3-inch pipe. Two men grasped it at their shoe-tops, lifted it above their heads and slammed it down into the hole. I timed them and found that they were making 30 strokes per minute. Blasting is done at the end of the shift and is quite a sight — from a safe distance. The charges are not fired in volleys but each is fused separately. For about five minutes it sounds like a firstclass battle and the air is full of dust and flying rock. The offices are about a quarter mile away and occasionally windows are broken and the wall facing the mine shows numerous marks made by flying rocks.

At the beginning of the shift the miners spend an hour or so breaking up the larger pieces of ore with sledges and the balance of the shift is spent loading it into wheelbarrows and wheeling it to the stock pile along a railway siding about 100 yards away.

Preconceived ideas of the indolence of the Mexican worker receive a rude jolt here. These men work hard and they work fast. I presume the reason is that miners receive better pay than the average laborer so a miner's job is worth making an effort to keep.

It was a picturesque sight, this reddish-brown mountain fringed with the bright green of grass, cactus and mesquite. The day was warm and the miners were garbed in sandals, shorts and miner's helmets. A coating of the ever-present iron oxide gave them the appearance of animated bronze statues. While small men, there were some splendid physiques among them.

We soon fe'l to work and succeeded in obtaining a few matrix specimens. These are difficult to get as the crystals tend to slide out of the rock at the least jar. It is exasperating to work carefully to obtain a specimen and then as it is turned over to dislodge the debris all the crystals slip out of their cavities as if greased. By this time Earl had disappeared and as I worked the miners stopped by one by one to tell me they had "muchas crystalis, muy limpia" (many crystals, very clear). I told them to meet us at the hotel at 6 o'clock and we would buy. About this time Earl returned and announced he had purchased a powder box full of apatite crystals and a few matrix specimens. It was still early but as we had all we could carry we left, each with a knapsack full of matrix specimens and the powder box

Wheeling Ore at Cerra de Mercado, Durango, Mexico.

of crystals between us. We had covered only about a third of the distance when we gave up and hailed a passing taxi. The remainder of the afternoon was spent packing our specimens and shipping them by express to Juarez where we picked them up on our way home.

The miners arrived at the appointed time, each with a box or bag of crystals. We all squatted down on the sidewalk. the miners spread out the crystals and the bargaining began. They asked about three times what they expected to get and we countered by offering about one-fourth of what we were willing to pay. The argument went back and forth with much joking and wise-cracking; pedestrians stopped to see what was going on and some of them even joined in the bargaining. It took us about an hour to complete the deal and it was obvious that the miners enjoyed themselves thoroughly. We parted with much handshaking and best wishes.

Going to our room we filled our recently emptied knapsacks and were just about to leave to look for something to eat when two miners appeared, each with a shopping bag of crystals. They dumped them on the bed and the bargaining began again. We soon settled with one of them and he left, but the other put up a terrific battle. He told us repeatedly and at length how fine his crystals were (they were only average) and emphasized his remarks by frequently scooping up a handful and letting them dribble through his fingers back onto the pile. This made a nice tinkling sound which seemed to please him, so we made a deal before he ruined them all and then left the hotel and kept out of sight for fear we would have to buy some more.

As the express office was now closed and we were due to take an early train for Zacatecas, we distributed the crystals through our baggage and at dawn staggered onto the train.

In conclusion I want to express appreciation for the fine treatment we received everywhere in Mexico. In the past two years I have spent several months traveling around out-of-the way places in Mexico. The Mexican people of every social level have proved to be most friendly and courteous and often have cheerfully neglected their own affairs in order to be helpful to us. To all of these I say, muchos gracias.

NOTED TRUMBULL MINE CLOSED TO COLLECTING

Mr. W.J. Elwell, of Danbury, Conn., has sent *Rocks and Minerals* some disturbing news. The first is that two youths from Brooklyn were arrested this spring for trespassing on the noted tungsten mine property in Trumbull, Conn. A few years ago this property was made into a public park — open to all and collecting permitted — and now it is closed if we are to judge from the following item which Mr. Elwell clipped from his local paper.

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2 Youths Arrested At Trumbull Mine

TRUMBULL, April 4 — Arthur Rachunas, 22, and his brother Richard, 17, both of Brooklyn, N. Y., were arrested here shortly after noon Sunday and charged with trespassing at the Tungsten mine in Mine Park.

They were held in bonds of $25 each for appearance in Town court tonight.

The Tungsten mine property was leased recently by the Town to Allen L. Hearst of Stamford for one year.

Mr. Elwell reports that he has heard that the same individual who leased the tungsten mine has also leased the abandoned but noted Bristol copper mine, near Bristol, Conn., and that collecting there is also forbidden.

The second bit of disturbing news is that the famous Baylis feldspar quarry, Bedford, N. Y., is said to have been sold, apparently to a private individual. If this be true and the quarry is no longer to be operated, we do hope the new owner may permit collecting to continue.

STRUCTURE AND MINING IN WILLIAMSON AND FRANKLIN COUNTIES, ILLINOIS

By ARTHUR H. DOERR

INTRODUCTION

Williamson and Franklin Counties, located in the central part of Southern Illinois, are important coal producing counties in Illinois. The population of the area is a non-homogeneous group, and is concentrated in a dispersed urban agglomeration of 200,000 people. This concentration has resulted chiefly because of the coal underlying the region.

Coal mining in Williamson and Franklin Counties is a 'big industry'. This is evidenced by the fact that the average annual production of coal is in excess of 15,000,000 tons, or enough to fill a freight train 2,400 miles long. Several factors have contributed to this large production, but geologic conditions have undoubttedly played the greatest part.

GEOLOGY

The Pennsylvanian, or coal-bearing system of rock in Illinois, has been subdivided into three divisions, namely: Pottsville, Carbondale, and McLeansboro. The Pottsville, or lowest formation, is from 800 to 1000 feet thick in this area. The formation includes the Number 1 coal, and all beds below the Number 2 coal. The Carbondale, or middle formation, is about 300 feet thick in this area; it begins at the base of the Number 2 coal and extends thru the Number 5 coal to the top of the Number 6 coal. The Number 7 coal is the only coal of any significance in the top, or McLeansboro formation, and it lies near the base of the formation.[1] Of the coal which is mined in Franklin County only the Number 6 vein is utilized; while in Williamson County both the Number 5 and Number 6 veins are important, with a minor amount of Number 2 coal also being mined.

The number of the coal seam is seldom used locally. The Number 2 coal is called Murphysboro coal, the Number 5 coal is called Harrisburg coal, and the Number 6 coal is called Herrin coal. These names were taken from some of the local cities of the area. [2]

In general there have been few structural disturbances in this section of the state, but several are worthy of notice. To the west of the region lies the assymetrically folded DuQuoin Anticline (actually a monocline), which presents its steep side to the west. This structure results in the coal being about 400 feet above sea level in the anticline, and at sea level in Williamson and Franklin Counties about two miles to the east.[3] The coal which formed to the east of the anticline is known to have formed under somewhat more favorable conditions and to be of thicker seam, better quality, and with fewer impurities than that in the anticline or to the west of it.[4]

Another belt of disturbances is the series of faults which cuts across Williamson and Franklin Counties in a diagonal west northwest to east southeast direction. The general effect of these disturbances has been to raise the strata about 100 feet in the north. Hence there are a considerable number of mines located near the faults, because the raising of the strata has eliminated the necessity of drilling so deep to reach the coal. In some places the faults have resulted in the termination of a coal bearing seam, because of the displacement. This termination of the coal seam has had the effect of increasing costs, and occasionally causing mine abandonment.

Most of the coal which is taken from the two counties is taken from the Herrin

1-Bement, A., *Illinois Coal,* Bulletin 56, Illinois State Geological Survey, Urbana, Illinois, 1929, p. 29-32 and *Analyses of Illinois Coals* Technical Paper No. 641, United States Govt. Printing Office, Washington, D. C. p. 9-10.

2-Bement, A., *op cit.,* p. 32. *Analyses of Illinois Coals,* p. 3-4, and *Mines and Minerals in Illinois,* Ill. Dept of Mines and Minerals, *Springfield, Illinois, 1944, p. 14.*

3-Bement, A., *op cit.,* p. 34 and *Analyses of Illinois Coals,* op. cit. p. 17.

4-Culver, Harold E., *Present Status of Correlation of Illinois Coals,* Illinois State Geological Survey, Urbana, Illinois, 1927, p. 12 and Bement, A., op. cit. p. 34.

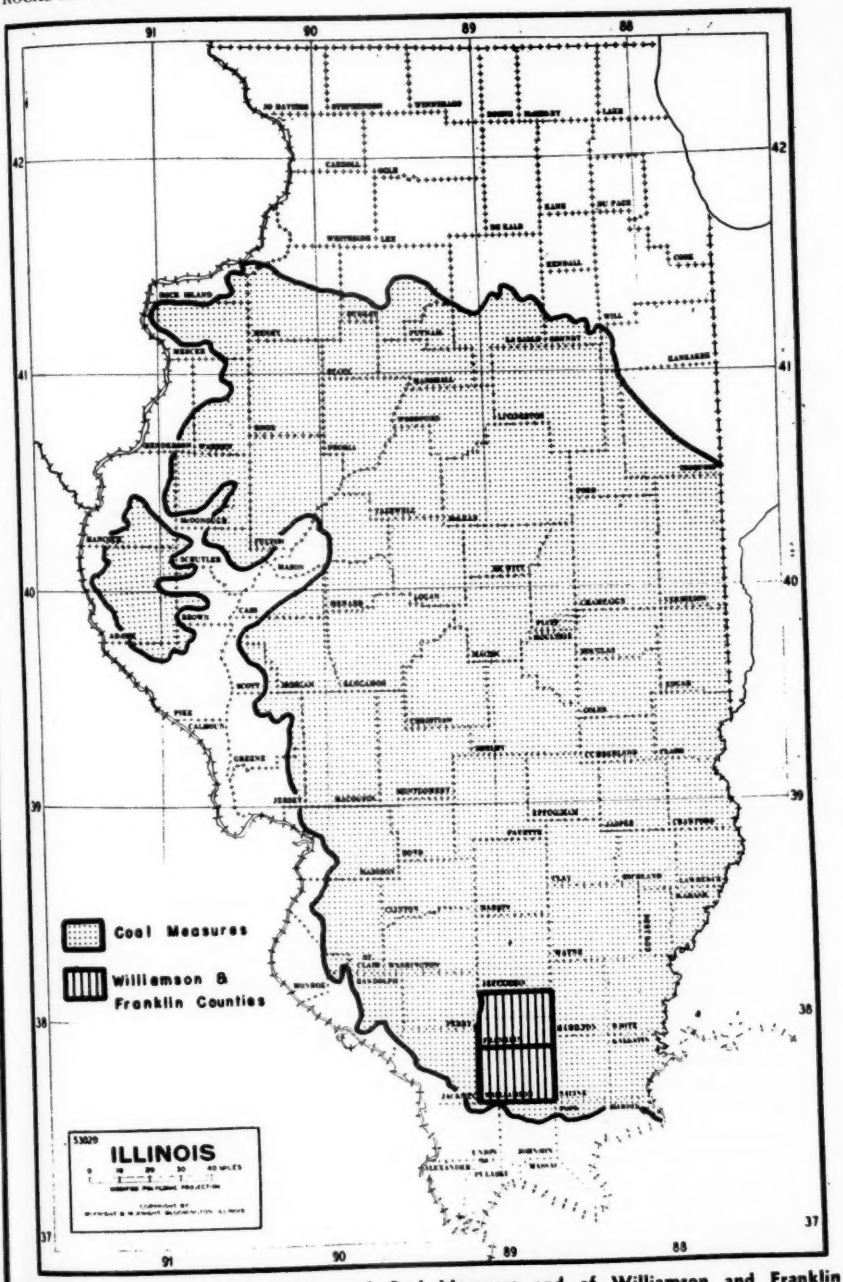

Fig. 1 — Map Showing Location of Coal Measures and of Williamson and Franklin Counties.

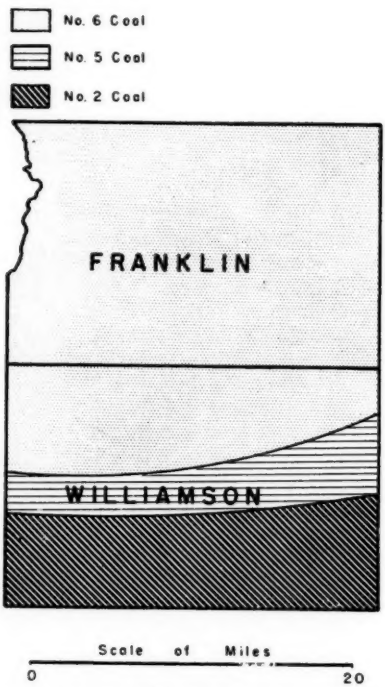

Fig. II — Map Showing Location of Areas Within the Two Counties in Which Different Coal Veins are Utilized.

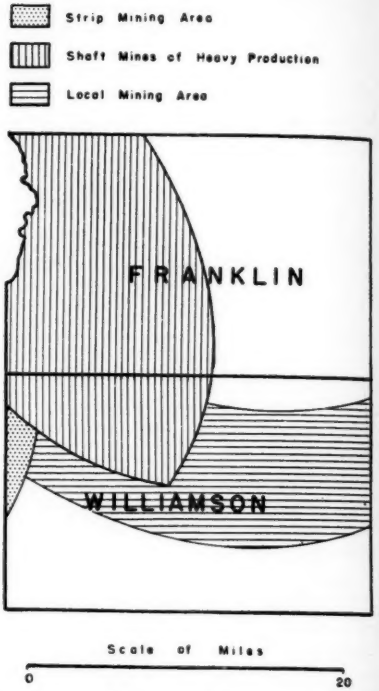

Fig. III — Map Showing Principal Mining Areas Within the Two Counties.

Number 6 bed. The coal in this area ranges in thickness from 4 to 14 feet and averages 9 feet in thickness. A distinguishing feature of this coal bed is the stratum of rock in the lower portion, which is known as the 'blue band'. This band, which is composed of shale, is ordinarily from three to four inches thick and must be removed in the mining operation.

The top above the coal seam is of a characteristically weak shale throughout much of the area, and frequently results in troublesome rock falls and accidents. In the thicker seams of coal as much as two feet of the coal is left in the ground as a safety measure. In the eastern part of Williamson County, where the coal seam is about 5 to 6 feet thick, the overlaying rock strata are strong enough so all the coal can be mined. In most parts of the area, however, expensive propping is necessary to prevent rock falls from the bad top.

MINING

The depths of the mines vary considerable from one section to another within this region. The mines are generally deeper in the north and shallow in the south. Depths range from 200 to about 600 feet with most of the mines averaging about 300 feet in depth.

The mines of heaviest production are located in southwestern Franklin County and northwestern Williamson County. The stripping area is located in west-central Williamson County. Most of the local mines are located in the central and southern part of Williamson County.

A great diversity of mining techniques are found in this area. In Franklin

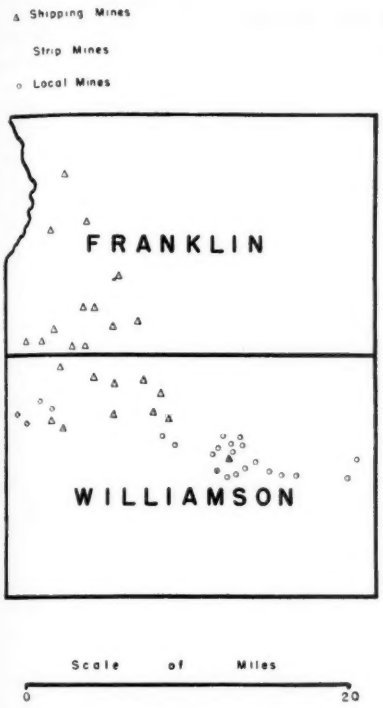

Fig. IV — Map Showing Location of Mines in Williamson and Franklin Counties (All Shipping Mines are of the Shaft Variety; Local Mines May Be Shaft, Slope, or Drift.)

County all the mines are of the shaft variety, while in Williamson County shaft, slope, drift, and strip mines are all operated. All mining which is done underground is of the room and pillar type. All large mines employ modern equipment and techniques.

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1. ....., *Analyses of Illinois Coals,* Technical Paper No. 641, United States Government Printing Office, Washington, D. C.

2. Bement, A., *Illinois Coal,* Bulletin 56, Illinois State Geological Survey, Urbana, Illinois, 1929.

3. Culver, Harold E., *Present status of Correlation of Illinois Coals,* Illinois State Geological Survey, Urbana, Illinois, 1927.

STORY IN STONE

Now a fellow from the city
Took a trip to western skies;
Just to hunt for mossy boulders
And to hear the buzzards sigh.

He collected and prospected,
Put the desert in a sack;
Cracked the jasper, chipped the agate,
Then quite quickly started back.

Soon the rock was in its holder
And the oil flew through the room;
Ah' what a mess a man could come to
For one gorgeous slice of plume.

Now the slab fell from the boulder
And he wiped away the mud;
What should have been a "scenic"
Was an old Nevada dud.

So the fellow from the city
Said his rock was "not the kind".
And he's sure the one of beauty
Was the rock he left behind.

Robert Tesmer

World's Deepest Borehole Abandoned

Rock Springs, Wyo., July 5, 1949. Drilling has ceased on Pacific Creek No. 1, the world's deepest well.

Superior Oil Company halted operations when the grinding bit had bored to a world-record depth of 20,521 feet (nearly 4 miles) — without striking oil.

Superior Oil Company is estimated to have spent, $3,000,000 in sinking the "dry hole."

Geologist Howard Jensen reported encountering temperatures exceeding 300 degrees Fahrenheit at the 20,000 foot depth — hot enough to make mud boil, but for the tremendous pressure exerted by the rock at that level.

Philadelphia, Pa., *Evening Bulletin* Tues. July 5, 1949.

Rocks and Minerals is indebted to W. Harold Tomlinson, of Springfield, Pa., for the above information on the deep borehole that has been sunk in the sagebrush country of southwestern Wyoming.

SQUAW PEAK MINE

By EDISON THACKER, Pres.
Squaw Peak Copper Mining Co., Camp Verde, Ariz.

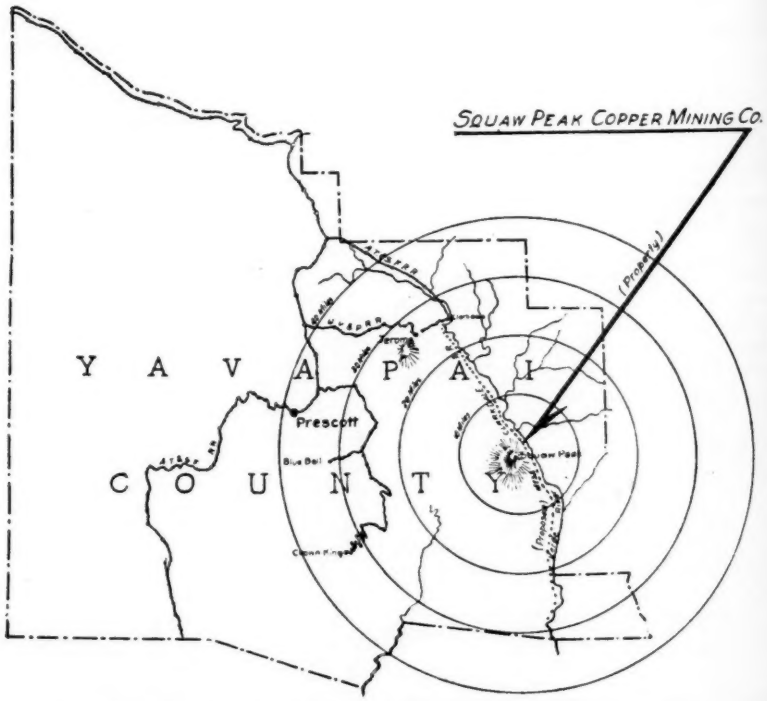
Situated in Yavapai County, Arizona, two miles west of the Verde River and ten miles south of Camp Verde, on the west slope of the Black Range at an elevation of 4,300 feet, the Squaw Peak Copper Mining Company owns and operates a group of 56 mining claims (approx. 1,100 acres).

The formation which these claims cover is a quartz and feldspathic gray granite, covered on its higher eminences with red sandstone, limestone and basaltic flow in the order of ascension as named.

The main granite mass has subsequently been intruded by another granite, this altered granite is distinctive and is defined from the general body by its inclusions of other rocks and its minute quartz seams. Dissemination of Pyrite and Chalcopyrite affords a distinct coloration on the surface as a resultant of weathering. The intrusions have a general course northeast and southwest, in the later granites.

Over 7,000 feet of prospect development work by shaft, drifts and crosscuts has been accomplished along with considerable diamond drilling. One 2,050 foot tunnel gives a vertical backing of 506 feet.

The Main tunnel on the 300 foot level has encountered a Copper-Molybdenite body of as yet undetermined size, two raises of 40 and 43 feet respectively, and lateral drifts and crosscuts 100 feet by 60 feet expose ore with further continu-



Map of Yavapai County, Ariz., showing location of Squaw Peak Mine.

ance unknown. Ore from this area was all sent through a 25 ton Marcy 4x3 Ball Mill and floated with Denver sub A Flotation machines.

Excellent recovery and high-grade concentrates were produced in this Pilot mill operation. Gold and Silver values were recovered with the Copper concentrate. The commercial ore consists of a dissemination of Chalcopyrite, Pyrite and Molybdenite, Gold and Silver. The alteration of the granite is strong, with extensive cross-fractures. The dark ferromagnesium minerals have been replaced and sericite developed. As far as the ore has been developed it appears an impregnation.

A stockwork or network of small quartz veins are present interlacing one another and traversing one another in various directions with inclusions of Molybdenite of exceptional purity which are crystallized in radiating masses in sizes at the base from one-quarter inch to one inch in diameter.

Pyrite and Chalcopyrite are associated with the Molybdenite but as a rule do not intermix in a finely divided state. This occurrence is of considerably economic importance, due to the fact that it enables a very high grade milled product which is often conducive to a premium.

The copper is in the form of Chalcopyrite associated with Pyrite. Pyrite is quite easily separated from the Chalcopyrite by flotation.

The Molybdenite, occurs in bluish-gray scales and foliated crystal masses cleaving to flexible non-elastic plates in radiating clusters and spots. A selective flotation makes a copper concentrate averaging 21% copper and a molybdenite concentrate upward of 90% MoS_2 containing less than .2% copper.

Some of the larger crystals of Molybdenite contain a small amount of Powellite, which causes a reddish sheen on the inclusions.

The Bureau of Mines (U.S.) and the Geological Survey state that the term "Powellite shall be given to the mineral Calcium Molybdate and the double salts of Calcium Tungsten as long as the amount of Calcium Tungstate does not exceed the amount of Molybdate.'

The amount of Powellite in the Squaw Peak ore is very small. Powellite is yellow, usually soft and a powdery material. It can be recognized with the short wave light. It fluoresces a golden yellow. Only a few of the crystals of Molybdenite at Squaw Peak give evidence of Powellite with the Black light.

BLUE-JOHN AS FACETED GEMS

G. F. Herbert Smith, the eminent British mineralogist and gem expert, has this to say about the form of fluorite known as Blue-John. "After the exhaustion of the Blue-John deposits (Derbyshire, England.) fluor has practically disappeared from ornamental use; but it might well be resuscitated in faceted form, in spite of its low refraction, easy cleavage and softness, so delightful are the colors to be seen; possibly the most pleasing are the yellow and green stones. With care, faceted stones should retain their appearance for years if worn as pendants or earrings, or in such a way that they are not subjected to constant rubbing." This paragraph was taken from Mr. Smith's very excellent book "Gemstones", which probably is the most complete and finest book on gem minerals of all kinds.

There is still available some Blue-John from British mineral dealers and from the concessionaires of the cave in Derbyshire where the mineral was produced, and there are still small veins of Blue-John to be seen in the cave walls . Shortly before the war I visited the Blue-John cave, which now is a tourist attraction, being right off the highway. On sale were some lovely specimens, including wine glasses and goblets which had been specially treated and turned on a lathe . . . certainly something unique to own.

T. Orchard Lisle

Long Wait But Worth It!

Editor R & M:

I am well pleased with your selection of articles printed since changing over to every other month. It's a long wait between but well worth it.

C. F. Shepherd,
Lompoc, Calif.

May 9, 1949.

DID ANCIENT MOUND BUILDERS GET MICA FROM NORTH CAROLINA DEPOSITS?

This Question Arises From Recent Reports of Use of Large Sheet Mica

ANSWER SUGGESTED

Local Experts Can Identify Mica From Most Mines

Did the sheet mica in the huge burial mounds built more than 1,000 years ago in Ohio, Indiana and Illinois come from the Spruce Pine, N. C., district?

Extensive quantities of sheet mica have been found in several of the mounds built by people who inhabited the middle west long prior to the coming of the Indians. A group of several of these mounds was opened up years ago in Chillicothe, Ohio. The excavations and the contents have been made a national monument there, under the management of the National Park Service.

Long studies of the human skeletons and the many kinds of articles buried with them in these mounds has enabled anthropologists to determine with surprising accuracy much about the people who built the mounds. Outstanding among the articles that were part of the burial ceremonies of those ancient days were pieces of sheet mica.

There are no mica deposits in that part of the country. It is accordingly believed that the mica came from workings in the Spruce Pine area. Should this be proved to be true, then it would be established with reasonable certainty that mica deposits in North Carolina were worked more than 1,000 years ago.

Carl B. King, superintendent of the Mound City Group National Park Monument, recently was supplied with two boxes of sheet mica from the Spruce Pine district by Clifford C. Gaynard, district ranger of the Blue Ridge. In sending these samples Mr. Gaynard wrote as follows:

"In accordance with the above request, I have sent two boxes of material that I sincerely hope will fill your needs. The larger box contains three samples of the sheet mica found in this section of North Carolina. The smaller box contains one heavier sample of the sheet mica and several pieces of the ore taken from the mines. I have further included a small package of the finished product as manufactured by the Carpenter & Phillips Mica Co. of Spruce Pine.

"It may be of interest to you that the darker mica sheeting is commonly known as "electric" mica to the local people, and that the amber or rose colored sheet is called "Ruby" mica. Among the finished products you will note the type of washer used in electric insulation work and the squares are included to illustrate the varying dimensions to which this mica is "peeled".

Superintendent King acknowledged to Sam J. Weems, superintendent of the Blue Ridge Parkway, receipt of the two boxes as follows:

"This acknowledges receipt of the two boxes of mica from District Ranger Gaynard. I wish to express my deepest appreciation for his and your cooperation in securing this material for use in the local display. This material forwarded was more than ample and of the type specified. In fact it is better than I had anticipated.

"For your information as to the exact use of this material by the Mound Builders at this site; in one mound a so called "platform burial" had the entire platform covered with sheets of mica, one of which was nearly circular and about 18" in diameter. In another case the primary mound covering an individual burial had sheets of mica arranged along one side of the base, about 2 feet wide and 3 feet long, to form a ceremonial pattern out of small sheets. In still other cases sheets were cut to resemble eagle claws, human hands and other ornaments.

"The display is to be set up in such a way as to give a credit line to the area furnishing the material. Since it will call attention to the varied points of origin of the materials used by these people."

Many years ago the editor of this newspaper watched over a period of years the opening of a mound near his home in Illinois. There were many pieces of mica in that mound, arranged somewhat the same as Mr. King describes. That mound was at least 700 miles from the Spruce Pine district, with no mica nearer than the deposits here.

The Tri-County News makes this suggestion: There are several mica experts in this district who can very closely determine the mine from which current production of sheet mica comes. Could these men determine the source of the mica mined ten centuries or more ago.? If they could, these points would be established:

(1) The mound builders transported their mica hundreds of miles through a country that was a wilderness as lately as 150 years ago.

(2) Mica was mined here centuries before the Indians mined deposits in this district.

(3) Mica mined at least 1,000 years ago is still in the same condition as it was when brought to the surface then.

The following letter from E. Frank Watson in regard to evidence of very old workings of the G. D. Ray mica mine in Yancey county was prompted by the article in The Tri-County News of March 24th on mica in the ancient mounds in the midwest:

Spruce Pine, N. C.
March 27, 1949

The Tri-County News:

In your issue of the 24th instant, you raise a very important question "Did the Mound Builders get mica from deposits here?

The following may throw light on your question.

Some time in the 1860's Garret D. Ray of Burnsville plowed up in his cornfield a pot filled with sheet mica. He supposed the Indians had put the pot and mica in this field years and years before this.

Later, about half to three quarters of a mile from where he found the pot of mica Mr. Ray found an ancient cut in the ground in which trees from 1 to 1½ feet in diameter had grown. On closer observation, he found in this cut fine ruby mica.

This developed into one of the largest, if not the largest and best paying mica mine found anywhere in this country. It is known as the G. D. Ray mine on Bolen's Creek near Burnsville in Yancey county, N. C.

Thousands upon thousands of dollars worth of mica were taken from this mine. Great quantities of Aquamarine and beryl, from which were cut some very superior gems, also have comé from this mine. No finer mica has been found in the United States than that taken from the G. D. Ray mica mine. It was mined during the last world war.

E. F. Watson

The Tri-County News is making an effort to find out whether this ancient pot to which Mr. Watson refers is still in existence. Anyone who knows of any ancient pottery of any kind that was found in this section should advise this newspaper promptly. They may help determine whether the mica in the old mounds really came from this district.

The Tri-County News, Spruce Pine, Newland and Burnsville, N. C., Thurs., March 24, and Mon. March 28, 1949.

Editor's Note: *Rocks and Minerals* is indebted to Mr. O. Ivan Lee, of Jersey City, N.J., for the above and with it came this note: "While down here (in Spruce Pine, N. C.) on a brief mineralizing vacation the enclosed from the local paper came to my attention, and it occured to me that it should be as interesting to readers of R&M as it was to me. I therefore secured copies and a release from the paper so all you have to do is to give them credit."

Offers Articles — We Acept!

Editor R & M:

Piedmont Carolina has literally hundreds of 19th century mines mostly abandoned and all nearly forgotten. Unfortunately there is little record of such workings and information must be obtained first hand as in the case of Iron Hill Iron Mine. Should your file of mineral articles run short, I could, from time to time, gather data by visiting some of these mines and put together such articles as the one enclosed (on Iron Hill mine).

C. Henry King.
Franklinville, N. C.

May 1, 1949

THE SAPPHIRE FIELDS OF ANAKIE WITH PARTICULAR REFERENCE TO RUBYVALE

By S. J. SQUIRES
61 Hawthorne Rd., Brisbane, Australia

Surely there can be no Australian, or even an International, gemmologist who has not heard of the Anakie Sapphire Fields. Probably, tho, only a very small proportion, even of the Australian species, visited the fields.

In the hope of interesting both those who have, and those who have not, may I be permitted to proceed.

Anakie, is the name of a small railway station, situated in Central Queensland cattle country, 192 miles from Rockhampton, and 588 miles from Brisbane.

It is from Anakie, as a centre of radius, that the sapphire fields extend in northerly and westerly directions, covering an area of approximately 400 square miles. The principal portion of the field now being worked is Rubyvale, situated about 12 miles from Anakie in a northerly direction.

Arriving at Anakie by train, at the dread hour of 3 o'clock on a bitterly cold morning in August 1948, I was met by Mr. Roy Spencer, of Rubyvale, the discoverer, by the way, of a famous gem to be mentioned later on.

Roy was thoughtful enough to have brought his "jeep", into which we both climbed, and set off through air as crystal clear, as many of the gems, over which we doubtless sped. Half an hour's clever driving over rough bush tracks, brought us to the one bush "pub" in the small township of Rubyvale. At that hour, one helps oneself to a bedroom and announces oneself at breakfast time.

By 9 a.m. I was out in quest of information concerning the field and its precious gem.

From various sources, to be acknowledged later on, together with my own observations, I gleaned the following information.

The township consists of a Post Office, two stores, "pub", and a couple of score or so modest dwellings, from one man shacks, to comfortable family cottages of wood and iron.

The population is around 200, a big proportion of the men being elderly.

Sixteen children, from first to scholarship grades, are ably tutored by Mr. Geoff Miosge — an ardent amateur digger.

The dwellings are built on both sides of Policeman Creek which runs right through the township — that is, when it rains.

The gems occur as water worn fragments in age-old gravel beds, gently rising from the creek on both sides to a height of 50 feet.

Mining consists of sinking by open cut, or shaft, to the gem bearing gravel, which is dug out and hauled to the surface for treatment.

Anakie sapphires are often associated with Zircon, Pleonaste, Tourmaline, Jasper, etc. in the gravel "washes" from the nearby Drummond Range. Also contained in it, are large boulders of Quartz, Basalt and a Quartzite rock, known locally as "Billy". These "washes" have various bottoms of Clay, Granite, Slate and Serpentine. In places, one "wash" is super imposed upon another.

The gems may be picked up on the surface, and may extend to a depth of 50 feet.

Area of the claims is 300 feet square.

Size of shafts is round about 4'6" x 2'0".

Timber is not used in the shafts, but is necessary in the drives.

"Quality" often goes with "Quantity", rich "wash" producing better quality gems than poor.

The recovery of the gem is mainly by dry sieving and hand picking. Also, according to circumstances, by "puddling" and screening.

Though "blues" predominate, beautiful "yellows", "greens" and "parti-colours" are obtainable.

The word "Sapphire" derives from the Latin "Sapphirus" — originally and strictly a precious stone of transparent, or

translucent rich blue corundum.

According to Bartholomew Anglicus, a medieval philosopher "The sapphire hath a virtue to rule and accord them that be in strife, to comfort and glad the heart.

Also witches love well this stone, for they ween that they may work certain wonders by virtue of this stone. This stone bringeth men out of prison bonds, and undoeth gates and bonds that it toucheth".

Absurd isn't it? Not so far removed, however, from the superstition-ridden folk still living, who maintain, in all sincerity, that the wearing of opal brings ill-luck to the wearer.

The first recorded sapphires were picked up in 1875 by Mr. Richardson a railway surveyor, who sent them away to be tested with some red zircons which he thought to be rubies

Probably those red stones inspired the name of Rubyvale. Of the pioneers of the field, the names of Dr. Stuart, Messrs. Evans, Blair, Fisher, Spiers, Logan, Duke, Newsome and Lidstone, stand out prominently. It was a rare pleasure to meet Mr. James Lidstone a dignified gentleman of 76 who arrived on the field in 1891, going into partnership with Mr. Duke. Mr. Lidstone's reminiscences were very interesting. He spoke of the days when a fair parcel of "blues" could be got 7/6 per ounce. He showed me his private collection of beautiful blues, greens, and yellows, labelled "not for sale". "Jim" still does a bit of digging, and if I am a judge, will continue to do so, for many years to come.

The field has had many ups and downs. Before 1906 there was no resident buyer on the field, all stone being sent to Melbourne.

The most productive years were from 1907 to 1925 (excluding the war years) when there were many resident buyers from the continent on the field, and up to 1,000 miners employed.

Official records show total value of gems produced to the end of 1946 to be £657,000, but the actual production is probably many times greater than this, as miners are not usually very careful book-keepers.

Like many other gems found in various parts of the world, Anakie sapphires bear Nature's hall-mark, which is quite distinct from the same gems produced in other parts of the world. They differ from other blues in being much darker. Within a certain range of shades, they are very beautiful.

So far as I could discover, the field has not yet produced any world-famous specimens comparable to many Australian Opals. This is, of course, excepting the very dark blue-black Star Sapphire discovered some years ago, by Roy Spencer.

This stone was recently cut in California, and was described in the press, as the "Black Star of Queensland".

Rough weight 1156 carats. Cut weight 733 carats.

Valued, according to the press, at the fantastic figure of 300,000 dollars.

The only other outstanding gem that I heard of, a beautiful deep yellow, was discovered in 1923 by William Dyer.

This stone when cut, brilliant fashion, weighed 32 carats and was sold in the vicinity of £1200 on the field.

These deep yellows are extremely beautiful. Unfortunately they are rare.

I acknowledge with grateful thanks, much help in compiling this paper, received from The Queensland Government Geological Survey, courtly Mr. Webb, appointed Rubyvale Post Master in 1913, but now retired many years, Mr. Harry Spencer, resident gem buyer and cutter, Messrs. Jack and Charlie Bradford (first white boys on the field), Mr. James Lidstone, and last, but not least, Mr. Willis Hagan.

It was a privilege to see skilled lapidarists Messrs. Ernie Goerg (father and son) at work, putting the finishing touches to, and enhancing a thousand fold, the gems' inherent beauty.

It was a great pleasure to meet many of these hardy, wholesome diggers, to hear them discourse on "milk" and "silk" and "smoke" — gem defects, to see them at their work, and be received into their hospitable homes — an experience that will remain a lasting happy memory.

F & M COLLEGE HONORS JOHN W. PRICE, SR.

One of the most unusual cases of self-made man has recently been revealed when an honorary Doctor of Science degree was conferred upon John W. Price, Sr. at the 162nd commencement exercises of the Franklin and Marshall College, Lancaster, Penna., Tues., June 7, 1949. It is a singular and well-earned tribute to a man who handicapped by the lack of a college education chose science as a career and made it a success.

Dr. Price's life reads like a Horatio Alger tale, beginning in Lancaster, Penna., on Nov. 2, 1897, the son of Nathaniel and Sarah Elizabeth (Van Aullen) Price. He attended the St. Ann Orphanage Grammar School, and the Washington Boro Primary School. His formal education ended when he was "graduated" in 1910 from the 7th grade of the one-room Washington Boro School.

His interest in the Natural Sciences began when, as a boy, he helped his great-grandmother gather herbs for old fashioned homemade remedies, arousing his interest in botany. He started to borrow, beg and buy all the books he could on the sciences to help him identify the curiosities he found in the fields. After seeing the motion picture "Lost World" he decided to make fossils his special field and began to fashion model dinosaurs from clay. His enthusiasm and encouragement were lifted in 1928 when he met Dr. H. J. Roddy, Curator of the Franklin and Marshall College Museum at the time, on an organized nature hike to the "Remains of a Devonian Forest", and a very warm friendship sprang up between the two, resulting in Price spending many hours at the museum asking questions and absorbing all the information he could gather.

Between 1930 and 1940, he began to assist Dr. Roddy in all the phases of work at the College, acquiring such valuable experience that on Aug. 30, 1940, he was named Assistant Curator by President John A. Schaeffer. By this time Price was, in Dr. Roddy's own words, "an outstanding authority on fossil invertebrates."

On the death of Dr. Roddy in 1942, Price was appointed to the post of Acting Curator and in 1943 President Theodore A. Distler advanced him to Chief Curator, a post which he now holds.

Dr. Price gives his services to the college and earns his living as a member of the Lancaster City Fire Department. Thus perhaps making him the only fireman in the world to hold an academic Doctor of Science degree. The honor bestowed upon him will add the letters Sc. D. to the "degree" of L.F.D. with which he has suffixed to his name, much to the amusement of his vast number of friends in the scientific world. He explains to puzzled associates the letters mean Lancaster Fire Department.

His citation reads:

Mr. President:

I am pleased to present

JOHN WILLIAM PRICE, SR.

whom on this occasion we honor for a lifelong devotion to natural science and to its understanding among people of all ages. Born in Lancaster and educated in its public schools, his interest in nature was early inspired and directed by the late Doctor H. Justin Roddy. Since 1930 he has given freely of his time to every activity of the Franklin and Marshall College Museum of Natural History and in 1943 was appointed Curator. Throughout this work he has labored to fire others with his enthusiasm for natural history through demonstrations in the public schools, through special museum classes for groups of all ages, and through lectures in this area to nearly every kind of organization. A member of the Paleontology Society of America, the Pennsylvania Academy of Science, and local scientific societies, author of several scientific articles, has had two new species of trilobites named for him, and is recognized nationally as an authority on fossil invertebrates. Under his guidance the staff of the Museum has been expanded to include experts in nine different fields of natural sciences, a staff which, working entirely without gratuity, is unique in our country. It remains only to be said that Mr. Price gives his services without com-

pensation, and earns his living as a member of the Lancaster Fire Department. I am proud to present him for the honorary degree of DOCTOR OF SCIENCE.

He was further honored on Wed., June 15, when the entire Lancaster Fire Department assembled and stood at attention in front of their equipment and presented to Dr. Price a Hamilton pocket watch, on behalf of his fellow firemen and for bringing "honor and glory" to the Department.

Fossils Named For Him

As a tribute to Price for his years of service in the field of science, two fossils and a cave worm have been named for him. The fossils, a trilobite and a gastropod from Lancaster County are known as Kootenia pricei and Helcionella pricei, respectively, and were named by Dr. Charles E. Resser, of the U. S. National Museum. The cave-worm, found in the Refton Cave in Lancaster County has been named Speliophyla pricei by Dr. Libby Hyman of the American Museum of Natural History.

Papers Published

Dr. Price has made a number of geological discoveries in Lancaster County. He has also written two scientific papers, "A brief history of the Pequea Silver Mine," and "A new locality for calcareous concretions", for the Pennsylvania Academy of Science, of which he is a member.

Conducts Classes

He has conducted special classes, for adults, in Geology, Mineralogy and Paleontology, which he calls "cigar-box education" and he has lectured to numerous schools, civic clubs and adult groups throughout eastern Pennsylvania.

Active In Boy Scouts

He serves as adviser for a local senior scout post and was instrumental in the post receiving national publicity, last year, leading them on an expedition to Florida and named by Price — The Golden Shoestring Expedition. He is, also, Camp Naturalist for the Lancaster County Boy Scout Camp, presenting weekly, illustrated lectures familiarly known as 'Mr. Price's Pink Tea'. He has assembled portable cabinets to display the common rocks and minerals, to be used for merit badge work.

Member Of Many Societies

Dr. Price holds membership in the Paleontology Society of America, Pennsylvania Academy of Science, American Association for the Advancement of Science, Muhlenberg Botanical Society (of which he is one of the founders), Lancaster County Bird Club, and is an honorary member of the Diagnothian Literary Society and the Franklin and Marshall Geological Society.

L. J. Duersmith

Deer Do Exist In Pennsylvania!

In the last issue of *Rocks and Minerals* (p. 238) mention was made of a recent trip thru Pennsylvania by your Editor with Mr. and Mrs. Howard Hamilton, of Vandergrift, Penn.

The trip was a most successful one except for two facts — the Editor lost his "valuable" Estwing hammer and he failed to see a deer. A deer is not of much consequence to a collector but when the Editor had casually remarked to the Hamiltons that he never saw one in Pennsylvania, the Hamiltons were going to show him one. Though our trip took us thru a number of northern counties of the State where deer were said to be so common that they actually tie up traffic — not a one was to be seen.

Mr. L. J. Duersmith, of Columbia, Pa., comes to the aid of the gentle, 4-footed creatures, claiming that they do exist and as proof he points out that a deer must have "swiped" the Estwing and thus all deer had kept out of sight until the Editor left the State.

And to further embarrass the Editor, Dr. Wm. S. Newcomet, of Philadelphia, Pa., sent us the following clipping taken from his local paper.

Deer Kicks Motorcyclist To Road Breaks His Leg

Port Jervis, N. Y., June 11 — (AP) — Clark Pounell's motorcycle hit a deer on U. S. Highway 6 in Pennsylvania a few miles from here.

The deer didn't like it. It kicked Pounell off his motorcycle, breaking Pounell's leg.

Pounell, 39, of Unionville, Conn., was recovering today at a hospital here.

—Phila. *Bulletin*, Sat., June 11, 1949.

The Editor is now convinced that deer do exist in Pennsylvania and that at times they do tie up traffic. But gosh all hemlock they are tough critters!

RECORD SIZE CRYSTALS AT PROSPECT PARK, N. J.

By T. ORCHARD LISLE

Never before have I seen such large quartz crystals, or in such quantity, at the trap rock quarry, Prospect Park, (Paterson) N. J. Many were more than ¾ inch in diameter. Joe Faussett and I opened a large pocket in the old section of the West wall on May 28, 1949. But the rock was so hard and so firmly cemented that we were only able to extract crystal groups from the first five or six inches of the hole, leaving the majority of the beautiful specimens in their original position. Probing the hole with a stick about 18 ins. long did not find its ends in two directions. Surface indications are that the pocket extends along the wall some four feet to where a pocket of amethyst crystals can be seen through another small orifice in the solid rock.

Upon arrival at the quarry I found that due to the installation of a new crusher there had been no blasting for several weeks. All the minerals in the loose rocks obviously had been removed by collectors, judging by the large quantity of broken pieces around. Consequently, I decided to work on what appeared to be a pocket in the solid rock, which I had noticed for some months, but had passed up as requiring too much effort, if not impossible to open up. After more than two hours work with hammer and chisel, I made an opening about three inches across, and decided to take a rest. Calling over Joe I asked him if he would like to take over the task for a stretch, which he did, and in an hour had enlarged the opening by at least an inch.

Looking inside we saw some of the biggest and best formed quartz crystals we had ever seen in this quarry. It gave us a real thrill! But it also was heartbreaking as we almost dispaired of getting them out undamaged, so tough was the operation. It was just past 4:30 p.m., and all the quarry workmen came over for a look. All said they had never seen such fine specimens there before.

There did not seem much chance of enlarging the opening further without drilling and blasting, but Joe kept pegging away and eventually obtained a number of small but nice groups, plus a dozen single crystals which broke off through the vibration from the desperate chiseling around the opening.

When I left the quarry at 7 p.m., Joe was still going strong.

Most of the bases of the crystals are studded with hematites, and some have hematite and pyrite inclusions. The quartz bases of some of the crystals are slightly amethystized, indicating that the pocket does extend to the other small orfice where amethyst crystals can be seen. This other opening will take even harder work to open up. Some of the crystals are of different shape from those usually found at Prospect Park, and the facets are unusually sharp and well-formed—perfect crystals!

As no blasting is likely to be done at this part of the quarry, it is possible that some fine crystal groups will remain in their original place for a long time, unless wantonly destroyed by someone with a long chisel in a vain effort to get them out.

J. J. Jewelcraft Issue 1949 Catalog

J. J. Jewelcraft, 915 E. Washington St., Pasadena 6, Calif., have recently issued their 1949 catalog on jewelry-craft and lapidary arts. It is a 60-page publication covering rings, bracelets, pendants, jewelry tools, lapidary supplies, etc. It is profusely illustrated and has an index in back. Send for your copy TODAY! Price 25c per copy.

Fluorescent Gems and Minerals: by Jack DeMent.

This 68-page publication has been issued for gem lovers and especially for those who are fascinated by fluorescence. The booklet is divided into 3 main parts as follows: Part 1—Radiation sources and technique which takes up the various types of ultraviolet lights and filters; Part 2—Fluorescent gems (from alexandrite to zircons); Part 3—Fluorescent minerals (from adularia to zippeite). Two valuable appendices also appear. The first is a check list of luminescent minerals arranged by color; the second is an abridged bibliography.

This very interesting and practical guide for the gem and mineral collector is issued by The Mineralogist Magazine, 329 S. E. 32nd Ave., Portland 15, Ore. Price $1.50.

THE WORLD'S ONLY LECHATELIEROLOGIST

By E. CARL SINK

All this talk of conquest of space and of interplanetary transport between the earth and moon leaves George Franklin Hill, Jr., of Raleigh, North Carolina, just a little bit cold. Hill and the moon have been on close terms for some time. In fact he wears a piece of the moon encased in his big, silver ring.

That genuine lunar stone is a clue to Hill's consuming hobby—a hobby which has made him the world's only "lechatelierologist." The exclusiveness is understandable. Hill invented the term himself to describe said hobby. But before we get in too deeply, maybe we'd better explain some of this.

"Lechatelierology" isn't as bad as it sounds. The term describes a little known branch of mineralogy — the study of melted sand. And there's much more intrigue to melted sand than you might think. In the first place only lightning, falling meteors and atomic bombs produce heat of intensity sufficient to fuse silica sand. Thus these are the only agents that can produce the object of Hill's search. In the years that he has pursued his hobby, Hill has amassed a priceless collection of "lechatelierite."

Hill's happy hunting grounds for specimens are the golden sand dunes of Dare County, North Carolina. Here, close to the spot where the air age began in 1903 with Wright Brothers first flight at Kitty Hawk, Hill roams the sandy acres seeking the lightning bolts that old Vulcan has fired into the earth. These shafts of fused sand — called "fulgurite" when formed by lightning — may plunge into the earth to a depth of 30 feet. Some are more than 250 years old.

Hill's collection includes many types of lechatelierites, including green fused earth from the first atomic bomb, splashes of fused sandstone from the Great Arizona Crater and other meteorite craters, fragments of the moon that have plunged to the earth — in the form of black pebbles of fused silica — after being dislodged from their mother planet by falling meteors. The "gem stone" of Hill's ring, mentioned earlier, is such a specimen.

The pleasant-faced collector finds that his hobby — unlike so many other hobbies — really pays off. The stuff is quite rare as collection, go, and Hill markets it all over the world to men of science who use it in continuing experiments. It has no commercial value.

If you would go questing for fulgurites, Hill has a word of warning: Don't carry equipment to lug home the specimens. If you do your hunt may be fruitless. But if you don't you'll probably stumble on a beautiful fulgurite, of size and proportions to stump a piano mover. Hill has. He doesn't know why this is so, however. He says, "I guess its just cosmic law."

Reprinted by per. from *Dodge News*
Detroit, Mich. Vol. 14, No. 2, p. 3.

Editor's Note: Mr. Hill is a member of the R&MA and he has prepared a number of interesting articles for *Rocks and Minerals*. The happy hunting ground of Dare County, N. C., mentioned above is described in his fine article "Nags Head and Fulgurites" which appeared in our Nov. 1945, issue, pp. 523-525.

Long Renewals

The longest renewal that *Rocks and Minerals* has received for some time arrived May 2, 1949, from Mr. Charles R. Correll, of Illiopolis, Ill. It was for 5 years.

On June 3rd, 1949, Ernest Romkee, of Kirk, Colo. renewed for 3 years.

The general run of renewals and subscriptions is for one year, a few for two years and one in many months for three years.

The longest renewal we ever received was for 10 years which arrived some years ago—one was from Miss Gertrude Schmidt of Castle Point, N. Y., and the other from Mr. Fred W. Schmeltz, of Warren Point, N. J. Both subscribers are still with us.

Grieger's Issue Summer Supplement

Greiger's, 1633 E. Walnut St., Pasadena 4, Calif., have recently issued a 1949 summer supplement to their large Encyclopedia and Super-Catalog of the Lapidary and Jewelry Arts. It contains 16 large pages with many fine illustrations. Send for your copy TODAY!

Baust Issues Price List On Rings

E. A. Baust, Box 257 Eureka, Calif., has recently issued a 14-page price list on ladies and gentlemen's rings — 130 of them being illustrated. The rings can be furnished with or without stones. Price list is free — send for a copy!

6th ANNUAL CONVENTION OF THE NATIONAL SPELEOLOGICAL SOCIETY

By WILLIAM J. FOSTER
3100 Lee Blvd., Arlington, Va.

Inasmuch as speleology, that is to say, the study of caves and caverns, constitutes one of the most fascinating of the many and varied branches of earth science, it will doubtless be of interest to the readers of ROCKS AND MINERALS to learn that the Sixth Annual Convention of the National Speleological Society was held at the Dodge Hotel in Washington, D. C., on April 1, 2, and 3, 1949.

This society, which was first organized upon a national basis some nine years ago, now numbers approximately 1000 members, representing not only about forty of the forty-eight states and the District of Columbia, but also a number of foreign countries in all parts of the globe as well. Although the pursuit of the various earth sciences obviously comprises a most important part of the work of the Society, its activities are by no means limited to these, but embrace in addition such widely diversified subjects as biology, archaeology, history, legend and folklore, and in fact any and all branches of knowledge which in any manner touch upon the underground. In addition, there are many members of the Society whose primary interest in speleology lies in the sporting and recreational opportunities which it affords, for such activities as rock climbing, hiking, camping, and many other outdoor pastimes are all quite naturally incidental to cave work.

At the Convention this year, the entire afternoon session of Saturday, April 2, was devoted to the presentation of papers on the geological and conservational aspects of speleology, Dr. Ralph W. Stone, President of the Society and Pennsylvania State Geologist, retired, serving in the capacity of Presiding Officer of the session.

The first of these papers, by Mr. William E. Davies of the U. S. Army Map Service, dealt with "The Status of Speleology in Maryland and West Virginia," and more particularly described in brief the results of a three months speleological survey of the latter state which was undertaken by Mr. Davies in conjunction with the West Virginia Geological Survey during the summer of 1948. It was pointed out that whereas a total of some 400 caves, comprising practically all of the larger known caves of the state, had been explored and surveyed for mapping, the work accomplished thus far had barely scratched the surface and could be considered merely as a starting point for future cave studies in the area covered.

Mr. Davies also went on to say that from the data obtained on this survey it now appears that in order for solution caves to develop, it is not only necessary that strata of limestone be present, but that such limestone must in addition have certain specific solubility characteristics, and must furthermore bear a definite elevational relationship with respect to the groundwater table. As an illustration of these facts, he pointed out that many of the caves investigated occur at or near the contact zone between the Coeymans and New Scotland limestones and at the levels of former river terraces, such situations clearly indicating their elevational positions with respect to the ancient water tables.

Considerable study of the nature and causes of "breakdowns" and rock falls within caves was also reported by Mr. Davies, as well as the fact, of particular interest to mineralogists, that the black, powdery deposit which is found in some of them, and which was formerly believed by many to be the soot residue produced by the pine torches of the early saltpeter miners, proves upon spectroscopic and X-ray examination to consist of a form of manganese dioxide which, although it closely resembles the mineral pyrolusite, is not identical with it in structure.

The second paper of the series, presented by Mr. Burton S. Faust, concerned the question of "How Saltpeter

Is Deposited in Caves." Several theories were discussed, including that which supposes that these nitrates are the result of the fixation of atmospheric nitrogen by lightning discharge in the air above ground, the resulting oxides being subsequently carried down into the caves by rainwater. The possibility of the formation of the nitrates from bat dung and other animal deposits by bacterial action was also considered. It was pointed out, however, that the preponderance of evidence appears to indicate that cave nitrates are more probably deposited by direct fixation from the atmosphere actually within the caves, through the agency of certain groups of non-symbiotic bacteria. The facts that these bacteria require for their growth a constant temperature, a limited but constant supply of moisture, and the total absence of ammonia such as would normally be present in deposits of decaying animal matter; in a word, exactly the conditions which are noted to prevail in the situations where the saltpeter deposits actually occur, appear very strongly to support the latter theory.

Two papers, each of which described an unusual type of water-deposited calcareous cave formation, were next presented by Mr. William J. Foster, and by Dr. Edward P. Henderson of the U. S. National Museum, respectively. Mr. Foster's paper described a peculiar stalagmitic structure; that is, a calcium carbonate deposit built up upon the floor of a cave by carbonate bearing solution falling from the roof above, from Breathing Cave, near Burnsville, Bath Co., Virginia. The formation was in this instance of a tubular nature, having a well-marked open flow channel of substantial cross-sectional area extending vertically throughout its central axis. Such a flow channel, although quite common in the case of stalactites, which are formed like icicles depending from the ceiling of a cave, are rarely found in the floor deposited stalagmites, the latter being usually entirely solid in structure . In this particular case, the presence of the flow channel was undoubtedly due to the fact that the formation had been built up upon and within a freely permeable bed of sand, rather than upon an impermeable rock or clay floor surface, as is much more usually the case.

The paper presented by Dr. Henderson concerned an unusually fine occurrence in Skyline Caverns, near Front Royal, Virginia, of a spectacularly beautiful and complex type of cave formation which are known as *anthodites*. These objects, which comprise radiating clusters of intricately branching and interlacing needle-like crystals and tubes of aragonite, are found in considerable profusion in certain portions of this particular cave. Dr. Henderson said that there was some evidence to the effect that they had been originally formed within sealed domes and chambers under conditions of partial vacuum, such vacuum having probably been produced by fluctuations in the level of water which had at times partially filled the cave. The erratic character of the tubular elements occurring in the clusters was ascribed to the occurrence of stoppages in their central channels, with the consequent breaking through the side wall of the tubes at the weakest points thereof by the solution flowing under pressure within them. A new and random direction of growth of the tubular structure, such as is actually observed to occur, would clearly be the result of such an action.

The concluding paper of the session, which was presented by Dr. Charles E. Mohr, of the Audubon Nature Center of Greenwich, Connecticut, dealt with the "Conservation of Speleological Resources." Although this paper was largely concerned with the preservation from extinction of underground fauna, and more particularly of the rarer types of such fauna, considerable space was nevertheless devoted to the preservation of the mineral deposits and formations found in caves as well. The scenic beauty and aesthetic character of these objects is too well known to necessitate description, and their scientific interest is also beyond question. From its inception, the policy of the Society has been strongly opposed to the breaking or defacement of these natural decorations, and more especially in an indiscriminate and wanton fashion,

and the collection of specimens which occur *in situ* is very definitely frowned upon. It should be noted here that there is a distinct difference between the collection of cave formations, and the collection of mineral specimens in the ordinary sense. In the former case, they are far more interesting and attractive in their natural setting than they would be out of it, and furthermore they are capable of being seen and enjoyed in such natural setting. In the latter instance, however, the specimens are not ordinarily in such a position that they may be seen and studied while *in situ*, and in most cases they would be irretrievably lost, were they *not* collected and preserved by some interested person.

In conclusion, it might be pointed out that none of the specimens which were on exhibit at the convention were deliberately detached from their original positions, but were picked up instead in already broken condition from the floors of the caves in which they were found.

GEOLOGIST SAYS 2 IDLE PENNSYLVANIA MINES MIGHT AGAIN YIELD ORE

It is possible that commercial ores could again be brought from two idle mines in Lancaster County, Penn., a group of 175 visiting geologists was told here today.

Both the Wood chrome mine, in the extreme southern tip of the county, and the Nickel Mines, near Gap, hold out "real possibilities for the discovery and production of commercial ores," the geologists were told on a field trip which covered both sites.

The scientists were here from many parts of the U. S. and Canada for the 15th annual field conference of Pennsylvania Geologists, which will continue through Sunday. They registered at Franklin and Marshall College where their host is the Department of Geology, and started touring the county this afternoon.

"The Wood mine has not been fully explored, and there is a reasonable possibility in finding new ore bodies at greater depths," the group was told by Dr. Edward Sampson, of Princeton University. Dr. Sampson, an international authority, has studied chrome-bearing rock in many parts of the world.

"It has been established that ore from the Wood mine is of the highest grade, and that there is very little of that grade to be found anywhere else. The Wood mine is one of the very few places where you've got the solid massive ore with very little else mixed in with it."

Dr. Richard Foose, of F and M, also a leader on the trip, told of state and national tests made at the Wood mine recently, and commented:

"There was insufficient drilling done. It did not prove that there is no more ore in the area. The possibilities were only partially tested."

At the Nickel Mine, Dr. Sampson said the owner of the tract, the International Nickel Co., had drilled in 1941 but had not publicized its findings. He called for a state law requiring that results of such drillings be filed with the State Geological Survey.

The Nickel Company has never abandoned the mine, "so you can draw your own conclusions as to presence or absence of this vital, scarce ore," Dr. Foose added.

Lancaster, Pa., *New Era*—Friday, May 27, 1949.

Makes Real Friends!

Editor R & M:

Enclosed is my renewal for another year. I sure have had a lot of help through *Rocks and Minerals* in making trades and real friends.

Lawrence Eddy,
Ironwood, Mich.

May 7, 1949

Does Not Like Bi-Monthly!

Editor R & M:

I, for one, do not like the bi-monthly idea—waiting twice as long for half as much! However, here's hoping, and best wishes.

J. R. Lee,
Bridgeport, Ala.

April 19, 1949

NATIONAL RESEARCH COUNCIL NEWS RELEASE

Appointment of Dr. David M. Delo of Washington, D. C., as the first Executive Director of the American Geological Institute, was announced June 3, 1949, by Dr. Detlev W. Bronk, Chairman of the National Research Council.

The American Geological Institute is a new organization established in November 1948 which will represent the profession of geology. It is composed of a union of eleven geological societies whose members total more than 10,000 professional geologists. Headquarters will be located in the National Research Council, 2101 Constitution Ave., Washington 25, D. C., and the activities of the Institute will be carried on in conjunction with those of the Division of Geology and Geography, NRC.

The primary objectives of the new institute are the advancement of geology and its application to human welfare by providing a means for the cooperation of organizations active in the fields of pure and applied geology. Membership is open to all non-profit organizations concerned with the earth sciences — geology, geophysics, geochemistry, mineralogy, etc. The initial member organizations are:

American Association of Petroleum Geologists
American Geophysical Union
American Institute of Mining and Metallurgical Engineers
Geological Society of America
Mineralogical Society of America
Paleontological Society
Seismological Society of America
Society of Economic Geologists
Society of Economic Paleontologists and Mineralogists
Society of Exploration Geophysicists
Society of Vertebrate Paleontology

The Institute is organized as an instrument of the National Research Council, in this way uniting geologists with all other American scientists who are seeking solutions to problems which can be attacked best through group or united action. Initially its functions will be concerned primarily with the non-research activities of the Geological profession, and will supplement the work of the Division of Geology and Geography of the National Research Council which is chiefly concerned with the coordination of research in geology and geography and its interrelationships with allied sciences.

Officers of the Institute are A. I. Levorsen, Dean of Mineral Sciences, Stanford University, president; W. B. Heroy, Beers and Heroy, Dallas Texas, vice-president; and Earl Ingerson, U. S. Geological Survey, Washington, D. C., secretary-treasurer.

Dr. Delo began his duties on June 1. He has served for the past three years as Chief of Scientific Manpower for the Research and Development Group, Logistics Division, General Staff, U. S. Army. During the World War II he was a Technical Aide in the Office of Scientific Research and Development and prior to that time was Chairman of the Department of Geology and Geography, Knox College.

The new Executive Director is a graduate of Miami University (Ohio) and received his doctorate degree from Harvard University. He is a Fellow of the Geological Society of America and a member of Phi Beta Kappa and Sigma Xi.

TECH ASSISTANT PROJECT FOR NORWAY

A technical assistance project designed to help Norway in the rehabilitation of mines destroyed by the Germans during the war got under way with the arrival in the United States on Friday, May 6, of two officials of the Sydvaranger A/S Iron Mines in northern Norway, the Economic Cooperation Administration recently announced.

The Norwegian technicians, Arne Stavang and Arne Hofseth, will spend six months in the United States studying methods and equipment which might be adapted for use in mine operations in Norway. They are particularly interested in modern methods of open pit mining, equipment used for milling and transporting ore, and American methods of pelletizing iron ore.

The Bureau of Mines, Department of the Interior, is cooperating with ECA's Technical Assistance Division in arranging the studies.

Stavang is superintendent of the Sydvaranger's aggolmerating plant,and Hofseth is chief mine superintendent.

MINERAL WEALTH OF WESTERN STATES

America's growing awareness of the importance of the western mining and petroleum industries was demonstrated by the decision of the American Institute of Mining and Metallurgical Engineers to hold its 77th annual meeting in San Francisco during the third week in February. This was the first time in its history that the A.I.M.E. ever has held an annual meeting on the Pacific Coast.

With the notable exception of iron ore, steel and coal, most large-scale extraction of strategic and valuable mineral wealth occurs in the far western and southwestern states. And even in those commodities, the west is not without representation. Scan the list of the others:

Texas leads the nation in petroleum production, with California second and Oklahoma third.

Arizona leads in copper, with Utah, Montana, New Mexico and Nevada following in the order named.

Idaho: produces almost 100 percent of our domestic supply of antimony, and leads in the production of silver and zinc.

Washington leads in the production of aluminum, silica and crude magnesite.

Colorado is the principal producer of molybdenum and vanadium, with Utah second in each case.

Nevada is the leading source of tungsten.

Oregon leads in chromite.

Montana produces 90 percent of our domestic supply of manganese, and is principal producer of vermiculite.

California leads in the production of gold and mercury.

Missouri is the first in the production of lead, but Idaho, Utah, Arizona and Colorado follow in the order named.

New Mexico, California and Utah share our pitifully small resources of potash, ranking in the order named.

Although *Pennsylvania* leads in the production of Portland cement, California and Texas are second and third.

Alaska and California are our principal sources of platinum metals.

Texas, Louisiana, California and Oklahoma rank in that order in the production of natural gas.

Truly ours is a great nation, impressive in all its parts!

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Source: 1946 Minerals Yearbook (U.S. Govt. Printing Office, 1948.)

HIGHLIGHTS OF PAPERS PRESENTED AT A.I.M.E. MEETING

The 77th annual meeting of the American Institute of Mining and Metallurgical Engineers, which took place in San Francisco February 13 to 17, 1949, featured sixty-six technical sessions during which approximately 300 papers on a wide variety of subjects were presented. Highlights are included below:

Alan M. Bateman, chairman of the department of geology at Yale University, emphasized that the United States is rapidly becoming a "have-not" nation in the case of many vital minerals. He said: "The future demands upon our diminishing domestic resources means that increasingly the United States will have to become more internationally minded with respect to minerals and to become more cognizant of foreign mineral potentialities.

"The mineral consuming industry in the future will have to lean more heavily on Government, and Government will have to learn to support industry - the two will have to become better team mates. This points to the necessity of establishing a national mineral policy as a part of our foreign policy to help guide and implement our future mineral welfare, and to help avoid ill-advised hand to mouth actions.

"Indeed, in dealing with those countries whose economy is largely dependent upon extractive mineral industry, a mineral policy might well determine our foreign policy."

Otto Herres, vice-president of the Combined Metals Reduction Company, Salt Lake City, said "In order to strengthen the mining industry we must have a sound American mineral policy that will promote the economic strength of domestic productive industries in these uncertain times of international unrest and world insecurity."

Herres advocated liberalization of taxation practices to permit adequate returns from mining operations, strengthening of tariff policies to encourage greater domestic mineral production, and the establishment of incentives to encourage the development of new properties;

Richard J. Lund of Battelle Memorial Institute, Columbus, Ohio, declared that the stock-

piling program of the federal government "is not a marginal program nor a residual claimant for resources, but is actually a high priority program, a vital part of the pattern for national security."

He urged a more aggressive purchasing program, co-operation with industry to reduce competition for limited supplies by placing them on a mutually agreeable allocation basis, use of long-term purchase contracts to stimulate both foreign and domestic production, and Congressional action to make funds available for carrying out a workable program.

J. K. Gustafson, manager of raw material operations, U.S. Atomic Energy Commission, stated in a paper read in his absence by Donald H. McLaughlin that: "The mining industry now has enough elbow room to deal with uranium properties without being unduly hampered by red tape....American private industry can and should perform the same kind of functions in this country with respect to uranium that it performs with respect to copper, lead or gold insofar as exploring, developing, mining and concentrating of ore is concerned—and for the same profit motive."

Dr. Philip L. Merritt, also of the Atomic Energy Commission, declared that "It is our firm conviction that normal competitive operations of the mining industry will prove the most effective way in which to assure constant, plentiful supply of uranium, the world's most strategic material."

He explained that new sources of uranium must be found if production is to be maintained over a long period of time. Dr. Merritt enumerated the three great pitchblende deposits of the world as (1) the Belgian Congo, (2) the Great Bear Lake region of Canada, (3) Saxony and Bohemia. In his absence, Dr. Merritt's paper was read by G.W. Bain of Amherst College, Mass.

Dr. Robert Gordon Sproul, president of the University of California, noted that billions of dollars are spent each year in the United States for scientific and technological research. He declared that this nation, with one-sixteenth of the world's population, consumes roughly half the minerals of industrial importance.

H.H. Hewetson, president of Imperial Oil Limited, Canada, reviewed recent petroleum discoveries in his country, and interpreted their economic impact upon the north. Declaring that the development of new oil fields in the Canadian prairie areas is converting Canada into a self-sufficient nation with respect to oil, Hewetson prophesied that the day may quickly come when Canada becomes an oil exporting country.

James Boyd, director of the U.S. Bureau of Mines, declared in an interview that it is "very possible" commercial use of petroleum products extracted from the oil shales of Colorado, Wyoming and Utah will be feasible in about five years.

Kenneth Schellinger and *O. Cutler Shepard,* members of the Stanford University faculty, reported on a laboratory method for simultaneous grinding and flotation of ores which, they said, can be adapted for practical use.

Represenatives of the National Lead Company, South Amboy, New Jersey, revealed for the first time in a technical meeting some of the techniques developed in their laboratories for the smelting of titaniferous ores. *Dr. Oliver Ralston,* chief of the metallurgical branch of the U.S. Bureau of Mines, predicted that advances made in titanium recovery will lead to eventual utilization of many ore bodies throughout the United States now classified as waste.

Hans Lundberg, Toronto geophysicist, described new methods of "prospecting" for promising ore bodies by use of helicopter and electronic devices. He described his operations in the Arctic Circle, telling how he surveyed nearly 4000 square miles in 43 days.

DOMINICAN SALT PRODUCTION TO BE RAISED

New York — The Dominican Republic has set in motion a plan to raise the output of salt from its Barahona Province mines to 200,000 tons annually within the next three years, the Dominican Information Center, 507 Fifth Avenue, New York City, announced June 1, 1949.

Goal for the first year is 45,000 tons, with that figure expected to be doubled the following year. At the same time, the government contemplates expanding the Puerto Hermoso salt mines in Trujillo-Valdes Province until they are producing 70,000 to 100,000 tons a year.

The country's biggest salt mine is Las Salinas (The Salts) in Barahona Province, in the southwest corner of the Republic. It penetrates Cerro de Sal (Salt Hill) a peak of almost pure salt, extending for a length of ten miles and towering 1,100 feet. Measured "at sight" it is estimated to hold some 75 million tons. Salt can be extracted in fifty-pound chunks that are ninety per cent pure.

To handle the increased output, the government will build two new salt refineries in the Barahona area — one to produce cooking salt, the other table salt.

NO. JERSEY SOCIETY VISITS BEDFORD, N. Y.

After a day of heavy rains, the weatherman, once again, obligingly favored the North Jersey Mineralogical Society with unusually fine weather for its field trip to the Baylis Feldspar Quarry at Bedford, New York. The day was delightful; pleasant and cool. This was the cause of added joy and enthusiasm among the 25 members and friends of the society, who assembled in cars, for the trip, at the Paterson Museum, on the Saturday morning of May 21st, 1949. After words of cheerful greeting, the drivers gathered together and with roadmaps in hand, decided upon the best and most pleasant routes to be taken on the journey. By 9:30, the mineralogists were on their way. Those following the car of Hans E. Engel, of Clifton, went by way of the Lincoln Tunnel, thence through New York City proper, and on to the splendid parkways of New York State, while others avoided the city traffic entirely.

For the most part, the trip was outstanding for its scenic beauty. Passing through Crestwood, the numerous locust trees in full bloom, formed a picturesque sight with their many drooping clusters of creamy-white flowers. Of interest, too, were the mallard ducks seen near Scarsdale.

Traveling on Route #22, over Poundridge Road, the mineralogists turned in at Greenwich Road in Bedford, New York, for a distance of approximately 6/10 of a mile, meeting near the designated house with a pump in the yard. With a left turn from here, it was but a short distance to the quarry.

On arriving at the quarry, it was learned that some of the members had developed an appetite in the cool, brisk morning air; though it was not quite lunch time, felt the need to satisfy their hunger urge immediately. Others, being curious to determine the possibilities of a good prospector's find, investigated various parts of the quarry at the outset. From first appearances, there seemed to be little of mineral value to arouse much enthusiasm. Realizing, however, that mineral hobbyists have claimed this quarry to be one of the best, from the collector's viewpoint, the group scattered individually, in all directions, in quest of the unseen buried treasures.

The Baylis Quarry is an interesting one in many ways. It was cut out of a small hill southeast of Bedford Village, together with the Colgate and Kinkel quarries (in the same hill) more than 65 years ago; but due to the high cost of operations, was abandoned in 1943. The hill is one of the many pegmatite dikes found in the Manhattan schist.

Baylis Quarry is at the far end of this pegmatite hill and has two levels. Water partially fills the lower level, while the upper level offers the best opportunities for splendid mineralogical finds.

The quarry, though small and seemingly insignificant at first sight, has a specific beauty of its own. As one watches from the upper level, it is a most entrancing and pretty sight to see the sunlight, shining down on the little pool of apparently deep-blue water, reflecting a constant series of shimmering waves across the rocky wall, directly ahead. It is as though a mirage of steamy vapor were being brought forth from some unseen fire.

Browsing around, the North Jersey Mineralogists gradually learned the true value of this interesting quarry. Katherine Kauth, a little disheartened at her slowness in discovering anything of mineral worth, suddenly noticed a reddish tint in one of the rocks. Thinking the rock might contain a garnet, she tried very hard to break it, all to no avail. With the assistance of the curator, William C. Casperson, who came by at that moment, the rock was broken and a pretty specimen of graphic granite containing a garnet, was secured.

It was not long before Paul Kellinghausen of Elizabeth wandered along, and in almost the same locality, uncovered deep-colored rose quartz of massive gem quality. Found in such large quantities, he soon had a nice pile of rose quartz specimens, which he later shared with all the members.

Another surprise awaited our Mr. Kellinghausen, for, remaining just about where he was, deep gem smoky quartz came into view. How delighted he was! From this time on, he was more than ever determined to hold to the Kellinghausen principle for prospecting, "Stay where you are and keep digging."

A happy turn of events was in store for Katherine Kauth, too, for there, near the base of the wall before her, was, what appeared to be, one side of a large smoky quartz crystal. Together with Marie Kuhnen, who now joined her, an effort was made to unfasten the crystal from the wall, but the process was very difficult.

Two o'clock had come and renewed energy was wanting, so time was taken out for lunch. After a nourishing repast, another attempt was made to loosen the crystal from its moorings, Ever-ready Mr. Kellinghausen working a few feet away, lent his assistance with a crowbar and other helpful tools, including a saw for cutting roots which protruded from the wall. It was at this point, while scratching away the surrounding earth with a hand rake, that Katherine Kauth noticed she had accidentally loosened a 3-inch multiple-terminated clear quartz crystal, which had fallen to the ground. What a thrill this was! Now, more than ever, there was a determination to obtain the smoky quartz crystal which was so firmly embedded in the rocks. With all three prospectors working together, the smoky quartz was removed. It was large; 4 inches in size, and double-terminated, with many feldspar crystals attached.

Another fine quartz crystal was immediately obtained by Marie Kuhnen at the same place.

Most of the prospectors were lured to this area, some time during the day, to seek their luck, for it seemed a crystal pocket had been opened, but long after the other prospectors had stopped working, Paul Kellinghausen was still seen working. He was actually digging a small tunnel in the wall and as he did so, crystal after crystal was brought forth. This truly was a crystal treasure-box.

But where were Anne Federoff, Richard Huber, Joseph Breen, Edward Simpson, and Mr. Herbert L. Califano during all the excitement at the quartz crystal pocket? They were nowhere to be seen. It was not until late afternoon, that they were discovered in a secluded spot, some distance away. There, Richard Huber and Mr. Califano were found hard at work, struggling with a huge beryl crystal, each taking turns to remove it, while the others gave their moral support. It is a sad story that this beryl crystal was not removed in its entirety, for the men certainly deserved some reward for their patience. Never-the-less good-natured Richard Huber claims to have found some other fine beryl specimens and so says, he is quite satisfied with his day's work at the quarry.

Elsewhere in the quarry, beryl crystals, leaning toward a golden color, were found in feldspar by Henry Mullner of Clifton.

A beautiful apatite crystal was found by Harold Weimann of Carlstadt.

As the day drew to a close, and the hour for the evening meal approached, the prospectors gradually left the quarry, all convinced that the field trip was a most pleasurable, sociable, and interesting one.

Those who came in the car of Mr. and Mrs. Henry Mullner and those in Wilfred Welsh's car, were the last to leave the quarry, both parting in different directions.

It was Mr. and Mrs. Mullner's wish to see a little more of the village of Bedford and then to travel homeward on those routes only, which would avoid the city traffic such as they encountered early in the morning, in order that only lovely sights might loom before their eyes, to end the wonderful day.

Thus it was, that Marie Kuhnen and Katherine Kauth, traveling in the Mullner car, enjoyed a pleasurable trip homeward; first through the little village of Bedford, passing the Bedford Antique Shop; then past Windmill Farm between White Plains and Armonk; past the Westchester Airport at Armonk, and on to Scarsdale, Crestwood, Bronxville; thence along the Hudson River toward the George Washington Bridge, a most magnificent sight to behold, both from a scenic and architectural standpoint. After crossing the

George Washington Bridge, the final lap of the journey brought the happy prospectors safely to their homes.

To Marie Kuhnen of Paterson, the president of the Audubon Society of the Paterson Museum, the day's outing meant more than just a mineral hunt. To her, is was a bird observation day, too. The little group traveling homeward in the Mullner car learned of Miss Kuhnen, that she had heard and seen the following 24 different kinds of birds in the vicinity of the quarry: the phoebe, bluebird, chestnut-sided warbler, yellow-throated vireo, red-eyed vireo, blue-winged warbler, black and white warbler, scarlet tanager, barn swallow, starling, robin, ovenbird, chickadee, redstart, bluejay, red-winged blackbird, chimney swift, crow, grackle, veery, wood thrush, tree swallow, pewee, and black throated green warbler. Seen near Crestwood, the flicker, northern yellowthroat, Canada goose, and mallard duck were mentioned.

All in all, the North Jersey Mineralogical Society's trip was an outstanding success.

Katherine Barbara Kauth,
Member of the Pub. Com.
North Jersey Min. Society

June 6, 1949

FOR THE BEGINNER IN MINERAL COLLECTING

PART 2

By SANDY RODGERS

10 La Grange Ave., Poughkeepsie, N. Y.

In this sequel of my last article I wish to review with the beginner in mineral collecting the ways in which he can get a good start in this line. To obtain specimens he can always write to dealers for information on their stocks. He can also find out from somebody more experienced about mineral and fossil localities near his home. The latter has proved very profitable to me.

Mounting Specimens

Mounting specimens is the most attractive way to display your collection. Other more experienced collectors than myself may disagree, but here is one way in which it may be done:

First, the beginner must obtain some neatly cut, square or oblong pieces of cardboard. (As many in number as the number of mounted displays he wishes to make.) He has several choices as to what type of specimens he wishes to mount, such as fluorescents, ores, or some small pieces that he values and would like to show off. One that will show ingenuity on your part is made by obtaining a small map of the United States, pasting it on a piece of cardboard for a backing, and then, after you have collected a specimen from each state, paste a piece of specimen from every state where it goes on the map. Use some strong adhesive like "Iron Glue". After this map is finished, make a "Key" to it by telling on a piece of paper the mineral in each state, and then paste that on the back of the map.

Trading Or Swapping Specimens

When the beginner thinks he has advanced enough in the number of specimens he has secured one way or another, and has also some duplicates, he should sort his specimens out, keeping the most showy and valued. Others he may keep in another section of his collection, which he might label his "Swap Shop". After enough have accumulated in this section, he can insert an advertisement in any of the leading mineral magazines saying that he would like to swap specimens with anybody interested. Eventually he will have to make out lists for other people to choose from his stock. A good list has at least 30 different pieces on it.

The beginner may choose from any of these ideas. I have profited from them and am passing them along in hopes that some other flowering collector will find new opportunities in the line of mineral collecting.

COLLECTORS' COLUMN

Conducted by A. CAL LECTOR

BARITE

This column, which began in the Sept.-Oct., 1948, issue, is of special interest to beginners in mineralogy, as we comment briefly on one or more of the common minerals. In the last issue we talked on azurite, an ore of copper. This time we will take up barite.

Barite is barium sulphate. It is used commercially for many purposes — as a pigment in paint (chief use), for green fire in fireworks, in paper manufacture, etc. Some varieties of barite take a high polish and are used for ornaments and even in place of marble (if in large slabs).

The name barite comes from two Greek words meaning *heavy weight*, as the mineral is very heavy. The mineral has many names among which are heavy spar, Bolognian spar, calk cauk, cawk, sulphate of barytes, barytes, baryte, and tiff.

Barite is a common mineral whose color is chiefly white but yellow, red, gray, blue and brown are also known. It is mined in huge quantities in various parts of the United States and throughout the world.

Beautiful crystals of barite are common, too, and many fine specimens may be seen in museums and private collections. The best crystals of barite are found in the lead mines of England of which the most noteworthy locality is Dufton (in Westmoreland), where some of the largest crystals known (up to 100 lbs. in weight) have been found. These crystals are white, yellow, or brown in color.

At the silver-lead mines of Liskeard, Cornwall, England, beautiful pale yellow barite crystals are found associated with fluorite and pyrite. In the iron mines of Egremont, Cumberland, England, pale blue barite crystals are associated with lustrous calcite crystals on hematite. At Newhaven (near Youlgreave) Derbyshire, England, deep brown barite stalactites are found which show a radiating structure and take a beautiful polish so that they are in demand for ornamental purposes and for cabinet specimens.

Beautiful barite crystals associated with stibnite, quartz, pyrite, sphalerite, etc., have been found at Felsobanya, Hungary (now Baia-Sprie, Romania).

There are many other localities throughout the world noted for beautiful barite crystals among which are Aikawa, Sado Province, Japan; Marienberg, Saxony, Germany, etc.

In the United States beautiful barite crystals are found in many states and some of the noted localities are Palos Verdes, Calif.; near Sterling, Colo.; Cheshire, Conn.; Cave-in-Rock, Ill. Buckshot and Murphy barite mines of Missouri; etc.

The barite "Roses" found near Norman, Okla., and near Salina, Kansas, are unique and often attract considerable attention when displayed in a cabinet.

If your collection does not contain a barite, order a few specimens from your favorite dealer.

AMERICAN FED. MIN. SOCIETIES OFFICERS FOR 1949-1950

At the annual convention of the American Federation of Mineralogical Societies, held in Sacramento, Calif., June 24-26, 1949, the following officers were elected to serve in 1950:

President — Jack G. Streeter, Tujunga, Calif.

Vice-Pres. — Don Major, Tenio ,Wash.

Secretary — Junius J. Hayes, Salt Lake City, Utah

Treasurer — Oscar Anderson, Davenport, Iowa.

Historian & Custodian — Ben Hur Wilson, Joliet, Ill.

The 1950 convention will probably be held in Chicago, Ill., with the Midwest Federation as host.

BIBLIOGRAPHICAL NOTES

AEC AND U. S. GEOLOGICAL SURVEY ISSUES HANDBOOK FOR URANIUM PROSPECTORS

The U. S. Atomic Energy Commission and the U. S. Geological Survey have issued a 123-page, pocket-sized handbook for uranium prospectors published jointly by the two agencies.

The handbook, entitled "Prospecting for Uranium," provides information on the occurrence, identification and sale of uranium-bearing ores. The material contained in the booklet includes the names and characteristics of uranium-bearing ores, the types of deposits in which uranium occurs, the various tests that can be applied to identify uranium minerals, the techniques for using the Geiger counter, and the laws and regulations which affect uranium prospectors.

The booklet is designed to answer the more than 5,000 inquiries which have been received by Government agencies as a result of the AEC's domestic uranium program, announced in April, 1948. Under the program, the AEC established guaranteed minimum prices for various types and grades of uranium ore and offered $10,000 bonus for the discovery of a high-grade deposit and the production therefrom of 20 short tons of ore or concentrates.

The handbook is available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., for a price of 30 cents. Lots of 100 will be available at a 25 percent discount.

THE SEARCH FOR URANIUM ORES
A Handbook For Prospectors

The present-day prospector looks for uranium instead of gold. The man who discovers a rich deposit of uranium has an opportunity of entering on the ground floor of a new industry which, a decade or two hence, is likely to govern a great many of mankind's activities.

To promote exploration throughout the Colonial territories for ores of uranium, the Geological Survey of Great Britain D. S. I. R. (Atomic Energy Division), has produced a short technical pamphlet entitled "A Prospector's Handbook to Radioactive Mineral Deposits." The pamphlet is published today for the D.S.I.R. by H.M.S.O., price 6d (20 cents U.S.A.) by post 7d. It provides the fundamental scientific information necessary to guide prospectors, geologists and mining engineers in their widespread search for those mineral deposits which form the basis of all developments in the field of atomic energy.

The British Government has made great investments in atomic energy installations, and the Ministry of Supply has recently guaranteed that over the next ten years it will purchase all the high-grade uranium ore that can be produced in the Colonial Empire, at a minimum of £1,540 per long ton (13s.9d per pound) of contained uranium oxide. In appropriate circumstances the Ministry will give grants towards the development of producing mines and for the erection of extraction plants. Such a guarantee is a challenge to the prospecting teams which, throughout the African continent and elsewhere in the British Commonwealth, help to meet the ever-increasing demands for mineral resources of all kinds.

Although the demand for uranium is acute and increasing, there is no reason to fear that the mining world will not be able to meet the requirements of this new atomic industry. Towards the end of the last century the world production of uranium oxide was not more than three tons per year; but by 1939 world output had risen to 600 tons. Today, although production statistics are not available, it is safe to say that the world is producing some thousands of tons of uranium annually. Millions of tons are known to exist in very low-grade deposits which may, however, require many years of research by the chemist and metallurgical engineer before economic methods of extraction may be discovered. It is to these deposits that the world may ultimately look for its principal source of power, just as today the supply of gold comes from low-grade ores that are no richer than the waste from many early mining operations. But for the moment, our uranium must necessarily come from the higher grade deposits; and just as in the California gold-rush of a century ago it was the rich pay dirt and not the low-grade ore that formed the prize of the prospector, so today his eyes are turned towards pitchblende, the principal mineral source of uranium.

To help prospectors, the Atomic Energy Division of the Geological Survey is prepared to assay and report on samples of uranium ore encountered during explorations in those countries from which the British Government might draw supplies. The lucky man who strikes it rich will have at his elbow all the expert advice and scientific equipment of this atomic age.

Copies of the 28-page Handbook may be obtained from H. M. Stationery Office, York House, Kingsway, London, W. C. 2, England. Price 7d. (about 25c).

Minerals and How to Study Them: by Cornelius S. Hurlbut, Jr.

This very interesting book, which first appeared in 1895 and written by the late Prof. E. S. Dana as a book for beginners in mineralogy, has long been famous in mineralogical circles.

The new edition (3rd) has been completely rewritten and revised by Dr. Hurlbut but its original aim (book for beginners) has been retained. A book for beginners in mineralogy should be written in simple language and well illustrated and Dr. Hurlbut has carried out these details in an admirable manner. The hundreds of fine photographs and drawings which include a full page frontispiece in color, which appear in the 3rd edition, are just what beginners want.

The book contains 323 pages, 387 photos and figures and a color plate, and sells for $3.90.

Published by John Wiley & Sons, Inc., 440-4th Ave., New York 16, N. Y.

Principles of Structural Geology: by Charles M. Nevin.

The 4th edition of this book has recently been released — it has been thoroughly revised and enlarged.

Dr. Nevin's purpose in writing the book is to discuss the deformations of the earth as simply as possible. Faults, folds, joints, cleavages, and other deformations are given much prominence. A new chapter has been added which presents the solutions of problems that arise in the field and in the preparation of reports and maps. It also contains laboratory exercises.

410 pps., 250 figs. Price $6.00.

Published by John Wiley & Sons, Inc., 440-4th Ave., New York 16, N. Y.

Fieldbook of Natural History: by E. Laurence Palmer.

This is a new book and its purpose is to present in one volume an extraordinarily comprehensive guide to natural history.

Prof. Palmer's *Fieldbook* embraces birds, fish, plants, rocks and minerals, the stars, molfusks, reptiles, and animals — more than 2,000 items and hundreds of pictures arranged and tabulated for easy reference.

The *Fieldbook* contains 664 pages and sells for $5.00 a copy.

Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y.

Fundamentals of Soft Soldering: by Charles Yerkow.

For the home craftsman, be he an amateur lapidary or mechanic, a new book has recently been printed for him. *Fundamentals of Soft Soldering* will be appreciated by all who use it because it eliminates the difficulties most persons have in making a good soldered joint —the many large, clear photographs take up the procedures step by step.

96 pp., 65 illus. Price $2.25.

Published by the Manual Arts Press, 2968 Duroc Bldg., Peoria 3, Ill.

Beryl Location In South Dakota

Rockhounds in South Dakota, or those passing through the State on mineral hunting vacations, might find the Helen beryl pegmatite deposit near Custer worth visiting if they are prepared to do a little hard digging.

Beryl is widely disseminated in the albite-quartz rock as crystals up to six-inch length, and in the perthite-quartz rock as crystals up to more than 12 in. in length, according to John Paul Griese, mineral technologist in his report to the Bureau of Mines. Coarser-grained beryl crystals of the perthite-quartz pegmatite are up to eight inches in diameter and 12 inches in length. They are usually opaque white to pale yellowish green, and are fairly abundant at the south end of the mass. Shells of beryl occur around central cores of albite, perthite, tourmaline and muscovite. This type of beryl is colorless, white or pale green in color.

The Helen beryl pegmatite, originally the Big Tom and Kem claims, is located 7.8 miles by road southwest of Custer, Custer County, South Dakota, and may be reached by travelling west from the post office at Custer on US Highway 16 for 5.5 miles, and then southwest for a distance of 1.9 miles on the unpaved Fourmile road. The mine lies approximately 0.4 mile west of the road, and is reached by a trail following between the timber and the edge of a cultivated field. The location is situated at a height of 5,500 ft. in mountainous pine-covered country. Should any reader visit the deposit it is hoped that he will send an account of his experiences to *Rocks and Minerals*. The Owner of the property is L. H. Jeffries, Custer, South Dakota, from whom permission should be obtained before visiting the property.

T. O. L.

THE MICRO-MOUNTER

Conducted by Leo N. Yedlin, 557 W. Penn. St., Long Beach, N. Y.

A general discussion of the methods of mounting the specimens in the m/m boxes is in order. Cork, balsa wood, dowel rods, plaster of Paris, sealing wax, shellac, dental wax and even yellow soap have been used, with more or less successful results. Most prevalent is the use of blackened corks, for they can be obtained in assorted sizes and are easily handled. Any drug supply house can furnish ample supplies, from size "00" for tiny xls to large flat ones for massive specimens. Eimer & Amend of New York City is the writer's source of supply. The corks can be obtained in pound lots very cheaply, costing but a fraction of a cent each. Slabs of cork half an inch thick and a foot square are available. These can be cut to fill a m/m box completely, for odd shapes, and numerous other purposes.

We use India ink for blackening, putting several dozen corks in a fruit jar, pouring the ink in, sealing the container, swishing the lot around until everything is covered, removing to a screen for drying, and then storing for use as needed. Some prefer to color the corks afterward, insuring coverage of any exposed spots cut away to make the specimen fit. This method is good, but takes more time and has the disadvantage of exposing the specimen to possible staining.

Many materials can be used for coloring. It is important that a dull finish be imparted, killing glare, so that a lacquer or any glossy coating should be avoided.

Where sticks of balsa wood are used (obtainable in hobby shops that sell model airplanes, etc.) the same technique is satisfactory.

Hugh A. Ford, who has conducted his mineral salesroom since April, 1946, in New York City, had been an ardent m/m collector for many years. His method was to use dental wax, which is stiff and rigid, but which softens with heat and manipulation. A small cone of the material was made, the specimen pressed into the apex, the base flattened, and the whole was cemented into the box. The great advantage of this method was the fact that the specimen did not have to be trimmed, or the supporting material cut to fit the rough base of the mineral. Always, in trimming, there is the danger of jarring loose some fine xl. However, Mr. Ford cautions against the use of wax for those who live in the tropics. "At one time", he states, " I was stationed near the equator. After several weeks I examined my m/m specimens and found that the heat and humidity had done remarkable things. Every mount was completely hidden by a network of fine white efflorescences looking remarkably like melanterite formed by altering unstable pyrite. The dental wax had become mouldy, and the white streamers completely filled the box. I had to clean each mount with alcohol to bring it back to shape."

The use of plaster of Paris is obvious, but makes for messy work, ruining the specimen wherever the plaster comes into contact with it, besides making heavy mounts. However, it takes a dull finish, and is useful where the mineral is so distorted that it cannot be properly set up otherwise.

Some of the earlier collectors used sealing wax, shellac, heavy glue and other adhesives to fasten the specimens to the mounts. Some were ringed with brass collars. Some of the mounts were colored in bright hues to make them attractive. It seems that the mark of a good collector was the ornateness of his mounts, and although many fine things were mounted, in some cases the external camouflage hid the beauty of the mineral. Our advice is to keep them simple. The supporting material should be so deadened in color that only one point of concentration is possible — the specimen to be examined.

Any good quick drying cement is satisfactory. We use Duco household cement, which is cheap and excellent. We try, too, not to use so much that it runs over

and slops up the job. Another reminder: try to have the top of the specimen not more than 1/16 inch from the upper edge of the specimen box. More light is available and greater fields of observation are afforded.

Additions to our mineral inclusions:
Millerite in Calcite — Keokuk, Iowa
Stibnite in quartz — Manhattan, Nevada
Cervantite in quartz — Manhattan, Nevada
Epidote in quartz — Alaska
Cinnabar on Stibnite in quartz — Pike Co., Arkansas

Cargille of New York City, has put out a long narrow plastic box for m/m collectors, roughly 3/4 inch high, 7/8 inch wide and 6 inches long. We have found it to be excellent for setting up a comparative group of minerals for observation without having to handle half a dozen or so individual boxes. We have just mounted 8 specimens of pyromorphite from Phoenixville, Pa., in a long line, each showing a different type of crystallization. It is a useful addition.

For those who like the paper m/m boxes we suggest communication with Mrs. G. E. Belz of Lansdale, Pa. These boxes are sturdy and well made. Mrs. Belz has a fine m/m collection, and has the boxes only because she was compelled to have thousands made up in order to get some for her own use.

We tried observing some fluorescent minerals under the 'scope, using both high and low frequency U.V. emanations. Specimens of willemite, fluorite, calcite, benitoite, clinohedrite and autunite gave a rare treat. The coloring and definition of the crystals were remarkable, and in the case of willemite, which was grey, and imbedded in white calcite, the contrasting red and green was almost startling.

We used a germicidal tube with red-purple corex A filter (Corning Glass Co.) and a "Gates Raymaster." Any type light will do, depending upon the mineral to be activated. The only requirement is that the light be focussed upon the mineral without shining directly into the eyes of the observer.

We visited the Gates plant at Franklin Square, L. I., New York, and were received most cordially. Mr. E. L. Koch of the organization demonstrated several types of lamps with angstrom output ranging from 2537 to 3700. The firm does not sell directly to consumers, but merchandises through dealers alone. However, their literature is available and is a "must" for the general collector and microscopist.

May we suggest that you obtain, if you have not already done so, a copy of *Rocks and Minerals* for December, 1931. The featured article in this issue is entitled "The Preparation of Micro Mounts" by L. C. Wills, M.D. The article is 23 pages long, and contains, in addition to a history of the activity, a detailed account of almost all the techniques involved, from the selection of the specimen to the final mounting, lighting, apparatus, labels and many other necessities. It is quite complete.

Yes, It's True, But Very Few Collectors Know It!

Editor R & M:

The other evening I had an opportunity to look over the back issues of *Rocks and Minerals,* as you know I have the complete file, and before I knew it the evening had been spent very enjoyably just thumbing thru one copy after another. It must be very gratifying to you to now see the great numbers of mineral collectors in the country, when back only twenty years ago you were trying alone to get persons interested in collecting. It is to you that the thousands of collectors owe a vote of thanks for your efforts in publishing *Rocks and Minerals* thru the trying and lean years. You have certainly contributed your many years of service to mineral collecting in a most generous and kindly manner.

R. E. Schortmann
Schortmann's Minerals
Easthampton, Mass.

May 1, 1949

CLUB AND SOCIETY NOTES

ATTENTION SECRETARIES—If you want your reports to appear in the Nov.-Dec. issue, they must reach us by Oct. 20th — The Editor.

Mineralogical Club of Hartford Outings for 1949

Aug. 6-7 — Tilly Foster, N. Y.
Aug. 21 — Westfield, Mass.
Sept. 11 — Greenfield, Mass.
Sept. 25 — Bristol Copper Mine
Oct. 8-9 — Franklin, N. J.
Oct. 30 — Branchville, Conn.
Nov. 20 — To be announced

Get your hammer, bag and pick
Put up your lunch, but do be quick
Join the gang; enjoy the fun
The welcome mat says Everyone.

The dates are all set
Whether dry or wet
The place to meet
Two-forty-nine High Street.

The two day trips at eight we start
The single day at nine depart.

If you are going and can take another
Just let us know; t'will be no bother
If you need a ride to join in the fun
Give us a call and you'll have one.

Geo. P. Robinson, 16 Simpson Street, Hartford, Conn. Tel. 7-9670.
Geo. Dunbar, 338 Wethersfield Ave., Hartford, Conn. Tel. 5-4887.
Franklin P. Rockwell, 88 Fern Street, Hartford, Conn. Tel. 3-9331.

Committee

Pomona Valley Mineral Club

The May meeting of the Pomona Valley Mineral Club was held in the Chemistry Building at Pomona College. Glenn Weist, outgoing president, turned the gavel and meeting over to Fred Smith, new president for the year. Mr. Smith appointed the following committee chairman: Program, F. Kroger; Publicity and Notification, Verna Weist; Field Trips; C. W. Illingworth; Membership, Esther Leggee; and Door Prize, Emma Kryder.

Fred Kroger, Club member, then spoke on "Gold". He gave some interesting facts on the mineral, stating its specific gravity is between 15.6 and 19.3, depending on its purity, and it has a hardness of 2.5 to 3. Pure gold is never found in nature, the purest being 99.91% pure, which is found in Australia.

Gold is always alloyed with another mineral for the purpose of making jewelry. The amount of gold in the alloy is expressed in carats, 24 carat being pure gold. It is the only mallable golden mineral, and one ounce of gold can be drawn out in a wire 3/4 mile long, or can be hammered out to 200 square feet. Mr. Kroger also described how gold leaf is made, by being pounded, cut, and beaten.

The mineral is found in nearly every country in the world, in thirty states, and in every county in California. It is also found in mineral springs and sea water.

Mr. Kroger then described some of the larger nuggets and gave a brief history of the more famous mines.

The speaker is a former miner himself, and had beautiful gold specimens to accompany his interesting talk, and other members brought specimens which added much to the evening.

Verna N. Weist
Publicity Chairman
322A East B St.,
Ontario, Calif.

Central Iowa Mineral Society

The Central Iowa Mineral Society elected the officers for the new year at its June 3rd meeting. These officers will take over their duties at the regular September meeting — there are no regular meetings during the months of July and August.

The new officers are:
President — H. R. Straight
Vice Pres. — Mrs. R. G. Hays
Secretary — Miss Irene Smith
Treasurer — Leslie M. Carl

Mrs. R. G. Hays, Sec.
Rt. 1, Buffalo Rd.,
Des Moines, Iowa.

Golden Spike Gem and Mineral Society

Here is the latest from Ogden, Utah.

The Golden Spike Gem and Mineral Society is now fully organized and going strong. We have 66 charter members, have constitution adopted, and will apply for membership in the Rocky Mountain Federation. The following are our officers:

President — J. C. Mahlum
Vice Pres. — C. L. Stallings
Secretary — S. P. Roach
Treasurer — Mrs. J. C. Mahlum
Historian — J. P. Lambert

Meetings are held on the 1st and 3rd Wednesdays of the month at 8 p.m. in Room 108, Weber College. All those interested in geology, mineralogy, gems, rocks, fossils, prospecting, Indian artifacts, etc., are cordially invited. Prof. Buss of Weber College instructs us in elementary geology.

Through the efforts of Pres. Mahlum and Vice Pres. Stallings, we have a beautiful display in the show windows of one of our leading merchants.

Oliver A. Mason,
1902 Jackson Ave.,
Ogden, Utah.

Newark Mineralogical Society

The 263rd regular meeting of the Newark Mineralogical Society was held Sunday March 6th, 1949, at 3 p. m. in the Newark Museum Addition Lecture Room, Newark, N. J.

The program for the afternoon consisted of a scientific talk by Mr. William C. Casperson, Curator of the Paterson Museum, Paterson, N. J. The Subject was "Mineral Coloration under Electronic Activation".

The speaker referred to numerous examples of the coloring of various minerals and mineral substances upon exposure to light. Inasmuch as light is an electronic frequency impulse, the effect of coloring is due to the electronic frequency of the light which is effective in the coloring process.

Early in the year 1947 it was reported that various minerals changed color under a new X-ray tube. The explanation for this phenomenon is in the fact that X-ray frequency, being an electronic impulse, was effective in altering the natural frequency impulse of the electron in the mineral and set up through its activation a frequency of the electrons in the atoms of the mineral sympathetic to the frequency of the activating agent.

Examples of glass window panes were exhibited, which upon being exposed to the light for a period of forty years had changed from colorless to a rich Amethyst. Similar examples are often seen in glass door knobs.

In such cases the knob on the inside of the door, installed at the same time, will show no coloration while the one on the outside will be Amethyst in color. Similarly, the window pane shows white, clear glass on the edges, where the putty obstructed the light.

The coloration of glass under the light from the northern sky only is known in some instances to have occurred in a brief period of eighteen months.

This coloration of glass under light explains the enriching of memorial windows and very old stained glass artistic examples. It is not imagination, but an actual fact that stained glass windows do improve with age.

An example was also exhibited of a piece of glass which showed decided Amethyst coloration after having been placed under a fadeometer for a period of 595 hours. Another example was of Amethyst color glass which had returned to its original color by exposure to heat of 500 degrees F. for a short time only.

Other examples of coloration of glass are abundant throughout the West, where bottles and various pieces of glass are found of a decided Amethyst color.

The speaker explained that the principle which is causal to the coloration of glass and minerals is also the cause of the coloration in vegetation.

All color, Mr. Casperson explained, is due to the frequency impulse of electrons within atoms, and a definite color will result when there is a frequency potential of electrons in a given substance in resonance to the frequency impulse activation of the agent. Of course, all electron frequency impulses must be within the frequency range of our vision, for us to see color at all.

Herman E. Grote
Publicity Chairman,
95 Lenox St.,
Newark 6, N. J.

April Meeting

Mr. Louis Andl, president of the Newark Lapidary Society, was guest speaker at the April 3rd meeting of the Newark Mineralogical Society.

Mr. Andl, who has made lapidary work his hobby for many years, discussed various kinds of polishing equipment and also the methods recommended for polishing diffetent materials. His talk was illustrated by a number of polished specimens and cabochons in variety. Numerous interesting anecdotes arising from Mr. Andl's long experience as a lapidary hobbyist enlivened his talk. A question period followed the talk during which Mr. Andl discussed problems experienced by club members.

Following the speaker, Mr. Judd spoke briefly of his experience in learning sphere cutting under the late John Vlismas, the well known professional lapidary. He displayed some of his fine crystal spheres and a flint sphere. Throughout their talks both Mr. Andl and Mr. Judd emphasized the necessity for taking measures to prevent contamination in polishing.

Mr. Leonard Morgan showed a number of polished specimens that illustrated the possibilities of local material for cutting and polishing. Included in his exhibit were cabochons of New Jersey carnelian, New Jersey tiger eye, and moss agate and jasper from Pennsylvania.

Mr. Albert White, Outing Committee Chairman, discussed plans for the first field trip of the year, which will be to the Bridgewater Copper Mine at Somerville, N. J., and is scheduled for April 24th.

Nan G. Matte,
Publicity Committee
36 Druid Hill Road,
Summit, N. J.

Atlantic Union College

South Lancaster, Mass.

We have recently organized a nature club here at the college with the name of *Solana* which stands for "South Lancaster Naturalists." As membership fees each member contributes one scientific magazine or journal to the library of the club. For the larger journals two or three may go together on it. All members have access to the library at any time.

Field trips are conducted two times each month in addition to regular monthly meetings and other special meetings. Our last field trip was to the coast in search of shore birds and marine life. Other trips have been taken to Harvard Forest and other areas.

Mr. S. L. Clark has contributed *Rocks and Minerals* as his membership fee.

Mrs. Richard Ritland,,
Librarian,
Atlantic Union College.

Southwest Mineralogists

The Southwest Mineralogists are glad to announce their twelfth annual show a big success. Many fine exhibits were on display, our judges were Mr. Don George of Cal Tech, Mrs. Jean Bennet of L.A.L.S. and Mr. Harry Hansen of Inglewood High School. We wish to give them a big vote of thanks as they were most gracious and competent in judging.

Members winning awards are as follows:

Mineral Display
1st award — Henry Green
2nd award — Marie Stager

Indiv. Mineral
1st award — Henry Green
Spec. award — Dorothy Craig
Spec. award — James Creighton

Crystal Display
1st award — Ellsworth Beach

Indiv. Crystal
1st award — Ellsworth Beach
Spec. award — Ellsworth Beach
1st award on polished Amethyst Crystal
James Creighton

Jewelry Display
1st award — Charles Cook
2nd award — Arthur Rich

Indiv. Jewelry
1st award on Silver Earrings — Charles Cook

Novelty Display
1st award — Frank Trombatore

Indiv. Novelty
1st award on Mosaic table—Frank Trombatore
2nd award on carved Onyx horse—
Charles Cook

Cabochon Display
1st award — Walt Shirey

Indiv. Cabochon
1st award — Walt Shirey

Faceted Stones
1st award — A. C. Gustafson

Oddity
1st award on Sand concretions —
Florence Ingledue

Polished Flats
1st award — Walt Shirey
2nd award — Henry Green

Indiv. Flat
1st award — Henry Green

Miniatures
1st award — Marion Thomas

Two outstanding novelties were on display this year. Mr. Cook had in his Jewelry display a horse carved from Death Valley Onyx, Mr. Cook is extremely clever with his jewelry designing and carvings.

Mr. Trombatore had on display a Coffee table of mineral transparencies in mosaic. This table has 472 hours labor and as Mr. Trombatore said, innumerable headaches. It is believed to be the only table made in this fashion.

Mrs. Florence Ingledue was awarded Special awards for her Gold display all panned by herself in Alaska, also for most beautiful fluorescent painting.

Many of our members wished to display in a non-competative class among these Mr. Al Hake with his wonderful collection of cabochons, Mr. & Mrs. Harold Lippitt with crystals and polished and petrified wood from various parts of the U. S., Mr. & Mrs. Ellsworth Kay with silver jewelry, faceted gems, and polished wood, and Mr. Lyle Kay with his originally styled jewelry.

Approximately 1,500 people attended the show and plans are being discussed for next year's exhibit.

The Southwest Mineralogists held their election for officers for the year 1949-1950 at the May 9th meeting. Officers elected for this year are as follows:

President — Frank Trombatore
Vice President — Henry Green
Recording Sec. — Hazel Creighton
Corr. Sec. — Connie Trombatore
Treasurer — Pearle Arnold

The board of directors to consist of the above named officers and Mr. W. A. Clarke, Mr. John Akers and Mr. R. F. Thomas.

Mr. Walt Shirey retiring President was elected an ex officio member of the board.

Connie Trombatore,
Corr. Sec.
338 Pomelo Ave.
Monterey Park, Calif.

Clark County Gem Collectors Gem and Mineral Show at Las Vegas

We are advised that the *Clark County Gem Collectors* have announced plans for a Gem and Mineral Show to be held at the United States Naval Reserve Armory, Las Vegas, Nevada, on November 11th, 12th and 13th, 1949.

This first show of the Southern Nevada group will be dedicated to the memory of Dr. William S. Park nationally known amateur geologist and mineralogist, who was a good friend and an inspiration to members of the club. Mrs. Mary Belle Park, widow of the late Dr. Park, has graciously offered to exhibit some of the Doctor's work, and it is expected that this may contain some of the local Indian artifacts obtained in conjunction with the Southwest Museum's expedition to excavate the "Lost City" which was buried under the waters of Lake Mead, as well as examples of his gem cutting.

Members have secured for exhibit a specimen of selenite which weights approximately one-half ton. It is a fine example of this mineral in clear crystal form and was obtained from the vein on the shore of Lake Mead. It is reported to weigh about 350 lbs. per cubic foot, and this specimen consists of about four cubic feet.

The Clark County Gem Collectors have elected Paul Mercer, P. O. Box 925, Boulder City, Nevada, Director of activities for the Show, and any communications should be addressed to him, or to Paul O. Drury, Publicity. P. O. Box 1028, Las Vegas, Nev.

Cleveland Lapidary Society
Cleveland, Ohio

Meeting of the Cleveland Lapidary Society was held on April 5, 1949, in the Mineralogy and Geology Building, Case Institute of Technology. There was no program scheduled for this meeting. The entire time was devoted to the reading and adoption of the Constitution, By-Laws and Code of Ethics for the Society.

Since the beginning of our Society in 1946, we have had no Constitution, By-Laws or any other documents to govern our actions, election of officers, exhibits, program or any other thing. We felt that it was necessary since the Society was growing so rapidly that some organized rule of conduct was necessary.

President Turbinski appointed five members of the Society and this Committee prepared the Constitution, By-Laws and Code of Ethics.

At this meeting the various paragraphs of each of the documents was read, corrected where necessary and approved. This Constitution will become effective as of June 1st, 1949, which is our fiscal year.

Previous to the adoption of the Constitution, the dues of the Society were $1.00 per year, which is now raised to $4.00 per year. This will give us a working capital, and we hope to make use of this money to put on better programs and to further the interests of the members of the Society.

The meeting for May 3rd is scheduled for election of officers for the coming year and a short program to be given by one of our members, Richard Frasier, on Diamonds.

May Meeting

The meeting was held at the usual time on May 5th in the Mineralogy and Geology Building, Case Institute of Technology.

Two items were scheduled for this evening — first, Election of Officers and Directors for the coming year and second, a talk by Mr. Richard Frasier on Diamond Mining in South Africa.

Ballots were distributed containing the names of candidates selected by the Nominating Committee. Ballots were marked, collected by the tellers and counted with the following persons being elected:

President — Dr. C. S. Bacon
Vice President — Charles Lutheran
Secretary & Treasurer — John M. Heffelfinger
Historian — Robert Tesmer
Directors:
For 3 years — Edwin A. Inkley, Eugene A. LaFevre
For 2 years — B. M. Brehm, Harold Bejcek
For 1 year — Frank Artino, Fred Lee

According to the Constitution, the immediate past President (Dr. T. J. Turobinski) is also a Board member. This group of men will direct the affairs and business of the Society for the coming year.

The new Constitution, By-Laws and Code of Ethics having been adopted at the April meeting, we are ready to start the coming year in good shape.

After the election the remainder of the evening was devoted to a very fine talk by Mr. Frasier on Mining Diamonds in South Africa. Dick illustrated his talk with slides — a great many of which had been taken down in the workings of the mine. Some showed the progress of the blue stone thru the mills and to the sorting, grading and selling tables. This talk was a departure from the usual and was very fine. Certainly, a lot of work went into its preparation.

Mr. B. M. Brehm treated us to a preview of his new cut-off saw which is a marvel from the Lapidary's view point. It will slice and trim with a 10 inch blade. Mr. Brehm worked out the details of this piece of equipment and is certainly has many features not found on any other saw on the market.

Mr. Eugene LaFevre also brought a new faceting head for the meeting (he built this equipment), and explained its many features and ease of operation.

Now that we are regularly organized, we can offer something to the members and to prospective members.

Shop talk followed and the meeting adjourned at 10:30. Fifty-two persons were present out of a membership of 106.

John M. Heffelfinger, Sec.,
7619 Redell Ave.
Cleveland 3, Ohio

Imperial Lapidary Guild
El Centro, California

The Rock Show put on by the Imperial Valley Gem and Mineral Society and Imperial Lapidary Guild held April 16 and 17th, was the best show yet.

Visitors were registered from 17 states outside of California which had 39 cities represented.

Attendance during the two days was 1400.

Twenty members exhibited in new show cases built by the club.

There was a large fluorescent display — material furnished by Geo. E. Moore, L. G. Beleal and Ed Rochester who was in charge of the exhibit. He was ably assisted by Mr. and Mrs. Thomas F. Coff, Red Cross field director, who exhibited their famous fluorescent paintings and also gave interesting talks on the phenomena of fluorescence.

Two saws belonging to Allen Mains and Ira Huffman were in constant operation sawing Thunder eggs for visitors.

A lap and polishing equipment was on display and demonstrated by L. G. Beleal.

Junior members who assisted with sawing were Marjorie Huffman and Bill Mains, with the lapping Bob De Celles and Edward Catlin and juniors do as good a job as the rock hounds.

Leon Miller assisted by Leo De Celles demonstrated silver work.

The U.S. Gypsum Co. displayed excellent gypsum crystals.

North Country Mineralogical Club

At the September meeting of the North Country Mineralogical Club, plans were completed for the purchase of a large mineral collection, brought together over about fifty years by a doctor in Middleville, New York. This collection of fine specimens is housed in a beautiful walnut cabinet, and has since been placed in the lecture room of the Plattsburgh Public Library, where our regular meetings are held. During this meeting, also, the series of talks on the birthstone of the month was continued by Gertrude Cone, who told about sapphires. Following the adjournment of the formal meeting, most of those present went to Champlain College, to examine the mineral collection of Arthur Sandiford, which he has on display in his rooms there.

The Club's last field trip of the 1948 season was held on Sunday, September 12th, when a picnic dinner was eaten on the shore of Lake Champlain, about two miles south of the village of Essex, New York. At this spot, several of our group found good examples of fossil gastropods in the limestone ledges. In the afternoon, we went to the head of Whallon's bay, where there is an extensive porphyry dyke. Many small specimens of this beautifully colored rock were obtained, which would be suitable for cutting and polishing, as were jasper and agate pebbles found along the beach. We also found fine specimens of calcite crystals, clear, blue, and grey, in the fissures of the shale ledges, at another spot. The group returned to Plattsburgh by way of Keeseville, where a picnic supper was eaten at the home of William R. Ellsbury, the Club president.

At the October meeting, the principal speaker was Mr. Wayne Byrne, president of the Algonquin Chapter of the Adirondack Mountain Clubs. Mr. Byrne told something of the geological history of the Adirondack Mountains, and outlined briefly the development of a conservation program in the region. The latter part of Mr. Byrne's talk was accompanied by movies which he had taken of many of the Adirondack peaks. Robert Sanford, of the U. S. Bureau of Mines, who had been working in this vicinity for a few days, was present at the meeting and gave a short talk. Mr. Sanford had returned some months before from seven years in Alaska, where he had directed the work of the U. S. Bureau of Mines in prospecting for mineral resources. He told much about the program, both in Alaska and in the continental United States. The birthstone talk of the month was given by Miss Louise M. Hoxie, librarian of the Plattsburgh State Teachers College, who discussed opals.

The main feature of our November meeting was the examination of the Club's collection. Mr. Ellsbury and Mr. Sandiford helped in identifying the minerals and explaining them. There are some especially fine specimens of various crystal formation and of several metallic ores A number of semi-precious and precious gem materials are also represented. It is planned to label and index the minerals, and to keep the collection on permanent display. Dr. Everett A. Manwell, of the Plattsburgh State Teachers College faculty, talked about the topaz, November birthstone, during this meeting.

The December meeting of the Club took the form of a Christmas party. A lighted, decorated tree held the place of honor at the front of the room. Following a short business meeting, the gifts which had been heaped around the tree were distributed by two of the younger members. Several new members were present at this meeting.

The annual election of officers was held during the January meeting. William R. Ellsbury, of Keeseville, was re-elected president. The other officers chosen were Dr. Everett A. Manwell, of the PSTC faculty, vice-president; Arthur M. Sandiford, of the Champlain College faculty, treasurer; Miss Gertrude E. Cone, PSTC, secretary. In discussing plans for the Club, which is commencing its third year, it was voted to hold for the next three months supplementary study and discussion sessions on the fourth Thursdays, in addition to the regular meetings on the second Thursdays. It is hoped that in this way we may learn more about the mineralogy of the Champlain Valley and Adirondack regions. Dr. Manwell will have charge of the geological aspects of the study. Mr. Harold Benson, of the Champlain College science department, will supervise the chemical and micro-chemical part of the work. Mr. Sandiford will direct the general mineralogical investigations. Following the January business meeting, Mr. Sandiford started us on a study of the minerals in our collection. About half a dozen of the minerals were taken up in detail, with discussion of their characteristics, chemical and physical properties, locations found, and uses.

The February meeting of the Club was held at the offices of Joseph R. Linney, former superintendent of the Republic Steel Corporation's plant at Lyon Mountain, N. Y., now consulting engineer for that and other mining companies and president of the North Star Company. Mr. Linney spoke to the Club, discussing chiefly uranium-bearing ores. He told of the five different types, and the location throughout the world of known deposits of each. One of the most interesting features of the meeting was the demonstration of his Geiger counter. Each of us had the opportunity to put on the earphones and listen to the sounds produced, first by the cosmic rays from outer space, then to the beta and gamma rays produced by the proximity of radio-active minerals. Mr. Linney also exhibited his collection of fine specimens of fluorescent and phosphorescent minerals. He concluded the program with a question-and-answer period.

Gertrude E. Cone, Sec.,

Chicago Rocks and Minerals Society

The Chicago Rocks and Minerals Society meets on the second Saturday evening of the month (except July and August) at 8:00 P.M., Green Briar Field House, 2650 W. Peterson Avenue, Chicago, Illinois.

At the April 9th meeting a prominent guest speaker, Mr. William Turnbull, Preparator of the Chicago Natural History Museum, presented the "Work of a Paleontologist". How he prospects, how he takes out a fossil and what is done with it after it is taken to the Museum. Mr. Turnbull is also known for his special interest in Ancient Turtles.

Program Chairman Steven T. Norvell had on display an excellent collection of minerals.

May Meeting

Edwin Goff Cooke made his fourth appearance before the Chicago Rocks and Minerals Society within the past two years. His previous performance given at the Chicago Natural History Museum before the Midwest Convention of professional and amateur geological and mineralogical societies to which the Chicago Rocks and Minerals Society was host.

Mr. Cooke has spent much time in the southwestern part of the United States gathering material of geological interest and producing 16mm Kodachrome movies and 35mm Kodachrome pictures to illustrate his talks on cyclical erosions and epierogenetic earth movements.

His latest picture, "A Safari Through Nature's Showcase", featuring The Utah Arches and Bridges and Dead Horse Mesa, was shown for the Society's open house meeting Saturday evening, May 14. Many members of mineral societies from neighboring cities were in attendance. The Cooke program which absorbed most of the evening was most enthusiastically received.

Vases of flowers decorated the refreshment tables. Many old acquaintances and friendships were renewed.

Helen L. Cooke,
2952 N. Lavergne Ave.,
Chicago 41, Ill.

Flint Hills Geology Club

Mr. A. C. Carpenter, well known Ottawa, Kansas, collector, was the speaker at the March, 1949, meeting of the Flint Hills Geology Club. Mr. Carpenter described his recent field trip to Hot Springs, Arkansas, with the Kansas City Geology Club and showed mineral specimens collected around Hot Springs and Magnet Cove. He also gave a discussion of meteorites and displayed pieces of meteorites which had been found in Kansas.

Mr. Carpenter then presented the club with a note book which he had compiled and which is a source of information regarding other nearby mineral and geology clubs, and contains among other items, descriptions of several collecting localities, a list of books and magazines (*Rocks and Minerals* got in) every rockhound should have, and reprints of two or three articles previously written by Mr. Carpenter.

Our club is a year old this spring, and has grown until we now have twenty-two members.

Several of our group are planning to attend the Kansas Academy of Science meetings at Manhatten the latter part of April. In May a number of our members will accompany the College of Emporia geology classes on a field trip to Magnet Cove, Arkansas. The trip will be under the supervision of Professor H. J. Bender, who in addition to being the instructor, is the president of our club. Mr. Carpenter will act as field trip consultant.

Mrs. W. D. Jones,
Secretary
406 Rural Street,
Emporia, Kansas.

Nebraska Mineral and Gem Club

New officers of the Nebraska Mineral and Gem Club, (formerly the Nebraska Mineralogy and Gem Club) elected Saturday, May 21, 1949, are: Kenneth McDowell, president; Charles N. Schwab, vice president; and Mrs. Ruth Van de Water, secretary-treasurer. The club has developed in the past seven years, from a small group, meeting semi-annually, to a society of more than seventy members, with an annual schedule of seven indoor meetings and three field trips. A new constitution, reflecting the new character of the club, was adopted at the annual meeting.

Addresses of the New Officers:

Kenneth McDowell, President, 2828 North 45th Street, Omaha 3, Nebr.

Charles N. Schwab, Vice-president, Box 5, Municipal Airport, Omaha 2, Nebr.

Mrs. Ruth Van de Water, Secretary-treasurer, 113 South 51st Street, Omaha 6, Nebr.

Passaic County Gem and Mineral Society
(Passaic, N. J.)

Passaic County Gemological and Mineralogical Society has held its last meeting for the current season on June 7th. The next meeting will be held Sept. 6, 1949.

At the last meeting the gems of northern New Jersey was the topic and the places where they may be found. The field trip to the Andover mine, at Andover, N. J., was also a topic. Plans have been made for a few field trips for the coming months.

At the September meeting there will be a large display of minerals which will include some which are fluorescent.

Membership in our Society is open to geologists, mineralogists, gemologists, lapidaries and diamond cutters.

Guest at our last meeting was Mr. W. B. Aitken, of the North Jersey Mineral Society.

Joseph Hanzl, Sec.,
18 E. 2nd St.,
Clifton, N. J.

The Georgia Mineral Society
March Field Trip

On Saturday, March 19, 1949, members and friends of the Society visited the Staurolite locality in Cherokee County, near Ball Ground, Ga., which is known as the J. M. Spear place. Mr. Spear as usual was glad to see us and we had the run of his property.

The best crystals at this place are small and under one-half inch, most of the twinned crystals are the 60 degree or X type, with a sprinkling of other types of twinning. Trillings were picked up by several members. A few near 90 degrees twins were found, and it was finders keepers as these are the exception rather than the rule.

In the valley west of the house,ledges were found with plentiful Staurolite beautifully exposed on weathered surfaces which would make handsome museum specimens. These rocks represent a rather high grade of metamorphism in an intermediate zone in which garnet and large staurolite crystals occur as porphyroblasts or metacrysts in a mica schist. Some of the large crystals picked up loose on the surface will measure three or four inches in length and several inches in width, also some of these large crystals include small staurolite crystals which formed earlier.

After lunch it was decided by the majority of the group to visit the Verde Antique quarry west of Holly Springs. This quarry is in a serpentine which is an ultra-basic intrusive rock containing stringers of chromite and grains and veins of magnesite. Among the minerals collected were: A pure apple green foliated talc associated with magnesite var. bruenerite, hydroxyl apatite found in the talc and in massive chlorite; also found was a light green amphibole that resembles actinolite.

About 35 members and friends attended this trip, including an enthusiastic group from Shorter College at Rome, Ga., who unfortunately arrived late and had to leave early.

May Field Trip

The "49" gold rush got under way about 8 A. M. on Sunday morning, May 15, 1949. Every conceivable kind of covered wagon was in the rush, including Jeeps, trucks and ordinary passenger cars, with about fifty eager seekers after the yellow metal.

Member E. C. Boyd was the host to the Georgia Mineral Society and their friends at his holdings near Dahlonega, Ga., where the pay dirt was panned for that magic mineral. The morning slipped by very fast and lunch was eaten right on the diggings, then the party was taken to a property on the west side of town, where a demonstration of real panning was put on by Mr. Bill Jenkins, the best panner in Lumpkin County, which makes him the best panner in Georgia if not in the world. Bill can get a good string of colors in most any pan he attempts, if he doesn't it's a safe bet that there is no gold in the first place.

Dahlonega, Ga., prior to the War between the States, was the gold capitol of the United States, and a U. S. mint operated there until 1861, however at that time production had declined and most of the miners had been lured to California after the discovery at Sutters Mill.

Dahlonega is a Cherokee Indian word meaning yellow metal and was originally Tauloniea; the probability is that the original settlers heard the word the way the Indians pronounced it and spelled it accordingly.

Regular Monthly Meeting May 2, 1949

The regular monthly meeting was held in the Civil Engineering Building of the Georgia Institute of Technology. A remarkable turnout was on hand regardless of the transit strike, which attests greatly to the abilities of our speaker.

Dr. Furcron announced plans for several Field trips including a two day trip to some North Carolina localities; and he also reported that the membership was just under 200 and was growing fast.

Professor A. T. Navarre, of Georgia Tech, the speaker of the evening, was introduced by Captain Peyton, and he gave a very interesting and informative lecture on "Principal features of Physical Geology". His talk was illustrated with Kodachrome slides taken over a period of years during his visits with groups of students and as a geologist, so his information and knowledge of these places is first hand and up to date. The principal features covered in his talk were volcanoes, caves, glaciation and erosion.

S. C. Knox
Corresp. Sec.
2142 Memorial Dr. S. E.
Atlanta, Ga.

South Bay Lapidary Society

The South Bay Lapidary Society, serving the communities of Manhattan Beach, Hermosa Beach, Redondo Beach, El Segundo, Torrance, Hawthorne, and Lomita, California, has just completed its first year and is developing into a very nice club.

Officers for the next year, starting with the May meeting, are:

President — Gary Britt — Redondo Beach

Vice-President — Mrs. Jane Hagar — Manhattan Beach.

Secretary — Mrs. Alice Bemis — Playa del Rey.

Treasurer — Bob Fredericks — El Segundo.

Meetings are held the first Tuesday of each month at Clark Stadium, Hermosa Beach, Calif. Those in these communities interested in lapidary work are invited to attend the meetings.

DeWitte Hagar, Past President

Pacific Mineral Society

Friday, May 13th, 1949, proved to be a lucky day for the members of the Pacific Mineral Society present at the Mayan Hotel to hear Colonel Clarence M. Jenni speak on "The Geology of North China".

Colonel Jenni, who has served in both World

Wars, majored in geology and paleontology at the University of Chicago. He assembled a collection of 20,000 invertebrate fossils for the Walker Museum. While with the Marshall Mission in China, he visited many Chinese provinces. He is a recipient of the Order of the Cloud and Banner from the Chinese government.

To illustrate his lecture, Colonel Jenni had on display many fossils which were collected on the Andrews expedition. Many dinosaur bones and eggs were located in the upper China Tibet plateau. Much of this section is above the 3,000 foot elevation with the striation of the earth noticable as tilted blocks in definite directions both north and south and others east and west. This area has eight months of dry and extremely cold winds, while the other 4 months the wind changes direction and blows in from the China Sea bringing moisture and dampness. The force of the wind may be felt inside brick buildings with all openings closed and a good hot fire roaring in the stove.

Northern China has a large undeveloped mineral area, including coal and hematite, which if developed could easily become the "Pittsburg and Birmingham" of the future for producing steel and iron. Copper and jade deposits are quite numerous and an oil belt has been located.

The Chinese people are interested in stones and minerals for their unusual shapes more than their use for manufacturing and carving. It is quite usual for an odd shaped piece of meteorite or other mineral to have the place of honor in the home being displayed on a beautiful hand carved teakwood stand.

Hand carved objects of China are made of many materials, including smoky quartz, white jade thru the many shades to the darker greens, bloodstones, turquoise, agate, lapis, malachite, azurite and cuprite. One method of polishing the hand carved stones is by constant handling of the stone, it is carried in the hand at all times constantly being turned.

Among the carvings on display were some that were relics from the Tombs as much as 4,000 years old. Some of the early day pins had findings used for fastenings very much like those used in the present times, also the early peoples used a "bit" for their animals much like those used today. The carvings were in many shapes, animals, fish-shaped bottles with delicate carvings on the inside and then painted so the carving would be visible thru the sides of the bottle.

Some of the early day tools were made of refined copper very much the same quality produced today. Some of it cast to paper-thin thickness and some of it returning to native elements from age.

Colonel Jenni made his talk so interesting that we all felt we had made the trip with him without any of the discomforts that would be encountered in a trip made to such a far off corner of the earth.

June Meeting

Pacific Mineral Society members found out how to "Prospect for Minerals by Plant and Animal Life" as told by Dr. John Herman at the June meeting held at the Mayan Hotel. Dr. Herman was one of the scientists interested in Atomic minerals in the early "thirties". He received the degree of Doctor of Science from the famous Charles University in Czechoslovakia, and is past president of the Los Angeles Mineralogical Society.

The average prospector eagerly searches for outcroppings or color when in the field, but Dr. Herman opened an entirely new method to most of us would-be prospectors and rock hounds.

When out in the field consider the type of vegetation, also take a second look at any cattle in the area. If the soil produces the zinc violet flower, the mineral zinc is indicated. The lead flower points to lead deposits. If the cattle or sheep are swayback a certain amount of lead will be found in the soil, and most likely there will be absence of copper. Cattle in the midst of plenty of vegetation that still look haggard and have large bones indicates the lack of calcium in the soil and should be fed gypsum. Animals that have a diet including hay that has been rained on receive an insufficient amount of phosphorus. Vegetation grown on soil containing aluminum acts as an astringent for the cattle.

Other interesting facts related by Dr. Herman are that potatoes contain silver to the amount of about a half ounce per ton. Although California supplies the world market with borax, there are sections of the state that have a deficiency of borax.

Most flowers contain silver and lead, the most vivid colors indicate more silver content, the petals are used to throw off the lead. The acidity or alcalinity of the soil determines the color of the flower. Aluminum in the soil forms an acid soil which in turn will change the color of the pink hydrangia to blue coloring, the same conditions will turn the common red cabbage to a deep blue.

Zinc and manganese are quite necessary to plant and animal growth. When horse-chestnuts are burned, three dollars a ton of burned ash has been recovered.

Bow-legged chickens indicate lack of manganese while manganese in excess prevents iron from acting properly. Fluorine and borax are germ killers. A wheat field planted upon soil containing uranium shows a great increase at harvest time over fields that do not contain the uranium.

Dr. Herman suggests that we rockhounds observe mother nature more closely, she has a large book open for us if we will only learn to read her vast writings upon this earth. He related a little story of two men crossing the open country during a sandstorm, both men were wearing glasses and the storm was so severe that one of the men removed his glasses while the other left his on and the sand pitted

them so that he could hardly see thru them, which was the starting of sand-blasting.

Pacific Mineral Society will be well represented at the convention in Sacramento with colorful '49er clothes and the ladies will each wear a blue and gold sunbonnet.

Mrs. M. Musselman,
Box 463,
Lomita, Calif.

East Bay Mineral Society

Members gathered at the Park Boulevard Club House, Oakland Calif., Saturday, June 4th, to enjoy a social evening, the occasion being the relinquishing of the gavel by the out going president, Millard V. Moore, to the newly elected president and his corps of officers for the term of 1949-50 to pilot the stately ship of the E.B.M.S. on its majestic and serene course of adventure thru the seven seas of Gems and Mineralogy.

After the banquet, introduction of visitors was in order. Mr. J. B. Nichols of Sacramento Mineral Society, favored us with one of his interesting talks. Also present was Dr. Austin F. Rogers, Professor Emeritus of Mineralogy of Stanford University, who delivered an impromptu talk on sidelights of interest to his audience.

Retiring president Millard V. Moore presented to each of his fellow officers a very fine mineral gift in token of his appreciation of their co-operation during his term of office.

Door prizes consisted of fine gems and lapidary work contributed by members.

The following officers were installed:
PRESIDENT — Gerould H. Smith
VICE PRESIDENT — W. C. La Rue
SECRETARY — Scott Williams and David Grigsby
TREASURER — Norman Lemkau
DIRECTOR — Ernest M. Stone
LIBRARIAN — Mrs. Vadis Kilker
CORRESPONDING SECRETARY—Gordon White

All present then retired to the display room where the prized Blue, White and Red Ribbons were awarded to the members who had exhibits of Lapidary Art, Minerals, Micromounts, Cabochons, Slabs, and Faceted Gems.

The exhibits were outstanding from an artistic viewpoint and were acknowledged by all present as one of the most complete examples of the works and hobbies of art embraced by the Society.

We look forward to another year of exciting trips and pleasant evenings together such as can only be enjoyed by members of an organization like the East Bay Mineral Society.

Gordon White

LAPIDARY EQUIPMENT CO. ANNOUNCES NEW LAPIDARY ARBOR

"If you can lift it, you can grind it on the new Hillquist Heavy Duty Arbor," says Bob Bradley, business manager of the Lapidary Equipment Co. in Seattle. "There are lots of puny little pebble grinders on the market. We decided to add to our Hillquist line of lapidary equipment the finest lapidary arbor that could be built, a husky brute that would be big enough to handle large rocks fast."

The new Hillquist Lapidary Arbor swings grinding wheels up to 2" x 12" in size on a 1" shaft machined to ¾" arbor holes. It is equipped with extra heavy silent ball bearings, rubber mounted, lubricated and sealed for life. Safety slinger rings provide added bearing protection. The four-step 6" pulley is covered with a heavy cast aluminum face plate for protection and appearance. Plenty of space for the hands is provided between the grinding wheels and arbor base. Splash guards of heavy aluminum can be adjusted in position as the grinding wheels wear down . . . an exclusive and highly valuable feature.

Internal deflectors in the splash guards vaporize the water spray to wet the wheels thoroughly. Provision is made for connection to water supply through fittings in the top of the splash guards. Metal splash pans are available for the Hillquist Heavy Duty Lapidary Arbor and are framed in wood for permanent support.

In addition to its use as a grinding arbor, this new Hillquist unit can also be used with both disc and drum sanders and with felt polishing wheels. Professional lapidaries especially will appreciate the extra capacity, vibrationless operation and high speed cutting action of the new Hillquist Heavy Duty Lapidary Arbor. Shipment can be made immediately from stock.